Affirmed

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

No. ~~288.~~ 94

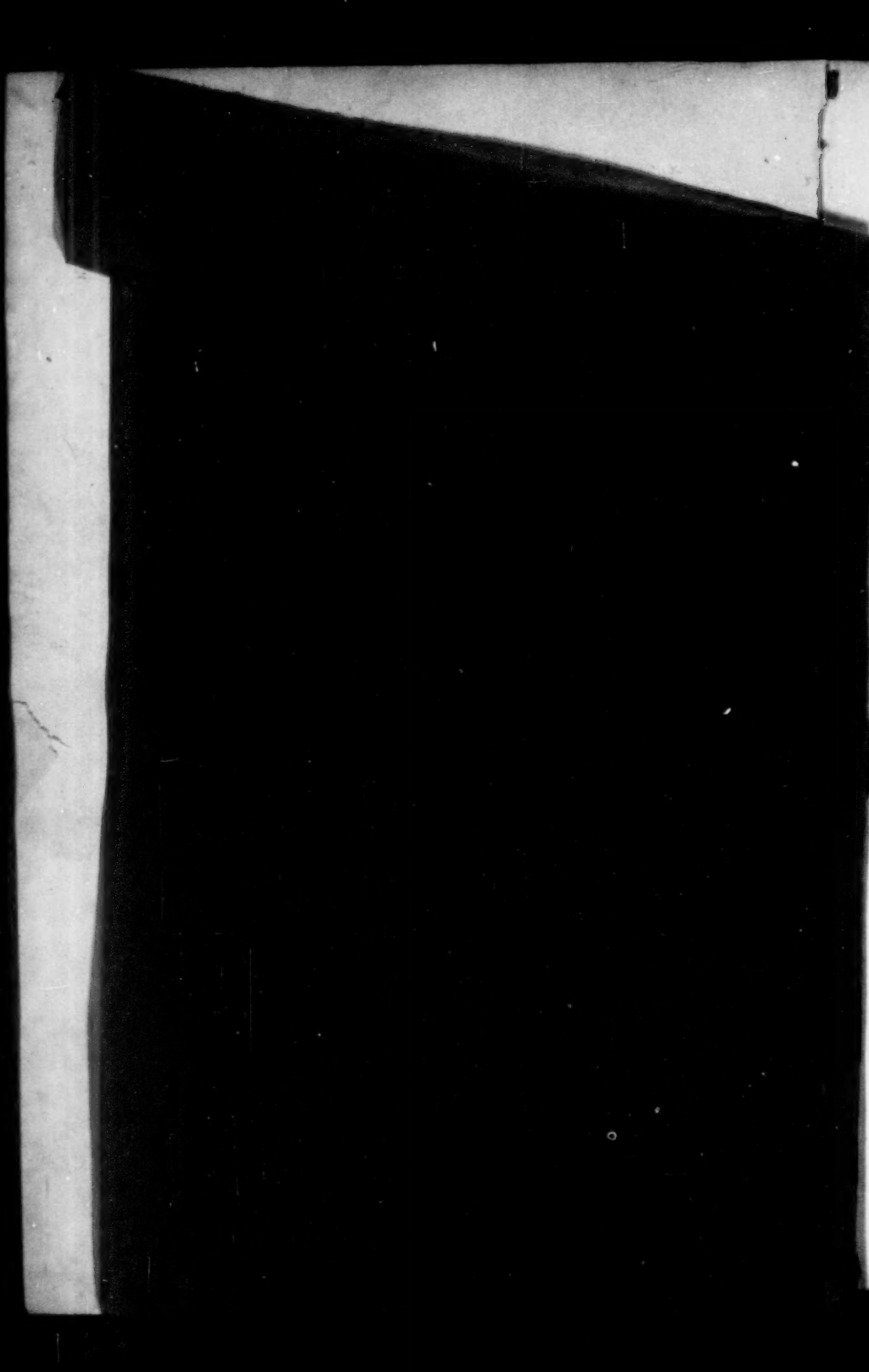
THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAILROAD COMPANY, PLAINTIFF IN ERROR,

vs.

JOHN DUBOIS.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MARYLAND.

FILED NOVEMBER 20, 1869.



SUPREME COURT OF THE UNITED STATES.

No. 288.

THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAILROAD COMPANY, PLAINTIFF IN ERROR,

vs.

JOHN DUBOIS.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MARYLAND.

INDEX.

	Original.	Print.
Style of court	1	1
Summons	1	1
Declaration	2	1
Pleas	9	4
Agreement for commission	10	5
Defendant's notice of defense	11	5
Replication	13	7
Rejoinder	14	7
Jury and verdict	15	8
Judgment	16	8
Bill of exceptions	16	8
Patent specifications and drawings	17	8
Evidence of Charles P. Fields	18	9
John W. Pratt	19	9
Robert Vandever	20	10
—— Howlett	21	10
William Myers	21	10
James Wilson	21	10
Daniel W. Kelly	22	11
John Dubois	23	11
Thomas B. Stetson	24	11
Edward Latimer	25	12
Joshua Bryant	29	13
C. B. Crossman	30	14
George A. Parker	30	14
John Rice	35	16
Edward S. Renwick	35	16
S. M. Felton	41	18

	Original.	Print.
Letters from plaintiff to S. M. Felton	42	19
Letters from plaintiff to ———	44	20
Evidence of Strickland Kneass	46	21
William J. McAlpine	46	21
Record in interference case between George A. Parker and John Dubois	46	21
Evidence of John Dubois in rebuttal	47	21
Thomas B. Stetson as an expert	52	23
John G. Redding	54	24
Hiram Woodward	55	24
William Loyd	55	25
David Tyler	56	25
Able Dubois	56	25
Charles Whitehead	57	25
Cornelius B. Field in rebuttal	57	25
Plaintiff's prayers	57	25
Defendant's prayers	60	26
Court's instructions	65	29
Writ of error	71	30
Citation	73	31
Writ of error bond	75	31
Clerk's certificate	77	32
Exhibit	78	32
Diagrams, (3)	83	35
Exhibit	84	35
Diagram	91	37

1 THE UNITED STATES OF AMERICA,
District of Maryland, to wit:

At a circuit court of the United States for the fourth circuit, in and for the Maryland district, begun and held at the city of Baltimore, on the first Monday in November, (being the fourth day of the same month,) in the year of our Lord one thousand eight hundred and sixty-seven—present, the Honorable William F. Giles, judge Maryland district; Andrew Sterett Ridgely, esquire, attorney; Washington Bonifant, esquire, marshal; James W. Chew, clerk—among other, were the following proceedings, to wit:

JOHN DUBOIS
vs.
THE PHILADELHHIA, WILMINGTON AND BALTIMORE Railroad Company.

Be it remembered that heretofore, to wit, on the 3rd day of November, in the year of our Lord 1864, the said John Dubois, by J. Mason Campbell and Luther M. Reynolds, esquires, his attorneys, prosecuted and sued forth out of the circuit court here the writ of the United States of America of summons, directed to the marshal of the Maryland district aforesaid, in the words and of the tenor following, to wit:

THE UNITED STATES OF AMERICA,
District of Maryland, to wit:

To the marshal for the Maryland district, greeting:

2 { SEAL'S } { PLACE. } We command you that you summon the Philadelphia, Wilmington and Baltimore Railroad Company that, all excuses and delays set aside, they be and appear before the judges of the circuit court of the United States for the fourth circuit, in and for the Maryland district, to be held at the United States court-room in the city of Baltimore, on the first Monday in November, instant, to answer unto John Dubois, a citizen of the State of Pennsylvania, in a plea of trespass on the case, &c. Hereof you are not to fail at your peril, and have you then and there this writ.

Witness the Honorable R. B. Taney, Chief Justice of our Supreme Court, the first Monday in December, in the year of our Lord one thousand eight hundred and sixty-three.

Issued the 3rd November, 1864.

JAMES W. CHEW,
Clerk Circuit Court.

J. M. C.
L. M. R.

And the said John Dubois, by his attornies aforesaid, on the day of prosecuting and suing forth of the aforegoing writ, declared against the said The Philadelphia, Wilmington and Baltimore Railroad Company in the plea aforesaid, in form following, to wit:

Declaration.

In the circuit court of the United States for the fourth circuit, in and for the district of Maryland.

[50c. int. rev. stamp cancelled.]

UNITED STATES OF AMERICA,
3 *Maryland District, to wit:*

The Philadelphia, Wilmington and Baltimore Railroad Com-

pany, having an office in the district aforesaid, was summoned to answer unto John Dubois, a citizen of the State of Pennsylvania, in a plea of trespass on the case, &c.

And thereupon the said John Dubois, by James Mason Campbell and L. M. Reynolds, his attorney, complains for that the plaintiff was the original and first inventor of a certain new and useful improvement, in the letters-patent hereinafter mentioned and fully described, the same being a new and useful "improvement in mode of building piers for bridges," &c., which improvement was not known or used before the said invention, and which was not, at the time of his application for a patent as hereinafter mentioned, in public use or on sale, with his consent or allowance. And the plaintiff, being the inventor thereof as aforesaid, and being also a citizen of the United States, on the twenty-third day of September, in the year of our Lord one thousand eight hundred and sixty-two, upon due application therefor, did obtain certain letters-patent therefor, under the seal of the Patent Office of the United States of America, and signed by Caleb B. Smith, Secretary of the Interior, and countersigned by D. P. Holloway, Commissioner of Patents, and bearing date the day and year aforesaid, whereby there was secured to him, his heirs, administrators, or assigns, for the term of seventeen years from the said twenty-third day of September, eighteen hundred and sixty two,
4 the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, as by the said letters-patent, in court to be produced, will fully appear.

And the plaintiff further saith that from the time of granting to him of the said letters-patent, he has made, used, and vended to others to be used the said improvement, to his great advantage and profit; yet the said defendant, well knowing the premises, but contriving to injure the plaintiff, did on the day and year last aforesaid, and at divers times afterwards during the said term of seventeen years for which the same was secured to him as aforesaid, and before the commencement of this suit, to wit, at the district aforesaid, unlawfuliy and wrongfully, and without the consent or allowance, and against the will, of the plaintiff, did make and use the said improvement in violation and infringement of the exclusive right so secured to the plaintiff by the said letters-patent as aforesaid, and contrary to the form and effect of the acts of Congress in such case made and provided.

And the plaintiff further saith that the defendant, well knowing the several premises, but further contriving and intending as aforesaid, after the making and obtaining of the letters-patent as aforesaid, and within said term of seventeen years for which the same was granted as aforesaid, to wit, on the day and year last aforesaid, and on divers other days afterwards, and before the commence-
5 ment of this suit, at the district aforesaid, wrongfully and unjustly, and without the leave or license and against the will of the plaintiff, and contrary to the acts of Congress in such case made and provided, did imitate in part and make a certain addition to the said improvement to the use, benefit, and enjoyment whereof the plaintiff was and is entitled as aforesaid, in breach of said letters-patent, and in violation and infringement of the exclusive right and privelege so secured to the plaintiff as aforesaid, and contrary to the form of the acts of Congress in such case made and provided; by means of the committing of which said several grievances by the said defendant as aforesaid. the said plaintiff is greatly injured, and hath lost and been deprived of divers great gains and profits, which he might and otherwise would

have derived from the said invention and improvement in the said letters-patent described and set forth, and in respect whereof he was and is entitled to such privilege as aforesaid, and has sustained actual damage to the amount of twenty thousand dollars; and by force of the acts aforesaid an action hath accrued to him to recover the said actual damage and such additional amount not exceeding the whole three times the amount of such actual damages as the court may see fit to order and adjudge. Yet the said defendant, though requested, has not paid the same or any part thereof to the plaintiff, but hath refused and yet refuses so to do.

Wherefore he brings suit, &c.

J. MASON CAMPBELL,
L. M. REYNOLDS,
Pl't'ff's Att'ys.

6 At which mentioned first Monday in November, in the year of our Lord 1864, being the day of the return of the aforegoing writ, comes into the circuit court here the said John Dubois, by his attorneys aforesaid; and the marshal of the Maryland district aforesaid, to wit, Washington Bonifant, gentleman, to whom the said aforegoing writ was in form aforesaid directed, makes return thereof to the court here, thus endorsed, to wit.

"Summoned.

"W. BONIFANT,
"*U. S. Marshal.*"

And the said The Philadelphia, Wilmington and Baltimore Railroad Company being called, appears in court here, by Thomas Donaldson and William Schley, esquires, its attorneys, and thereupon, on motion of the said John Dubois, by his attorneys aforesaid, it is ruled by the court here that the said The Philadelphia, Wilmington and Baltimore Railroad Company answer to the declaration aforesaid of the said John Dubois in the plea aforesaid, or judgment by the court here will be entered against it in default thereof.

And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, defend the force and injury when, &c., and prays leave of the court to imparle until the first Monday of April next; and he hath it. The same day is given to the said John Dubois, then and there, &c.

7 And now here at this day, to wit, the first Monday in April, in the year of our Lord, 1865, until which day the said The Philadelphia, Wilmington and Baltimore Railroad Company had leave to imparle, and then to answer the declaration of the said John Dubois in the plea aforesaid, come again into the court here the parties aforesaid, by their attorneys aforesaid.

And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, prays leave of the court here further to imparle until the first Monday in November next; and it has it. The same day is given to the said John Dubois, then and there, &c.

And now here at this day, to wit, the first Monday of November in the year 1865, until which the said The Philadelphia, Wilmington and

Baltimore Railroad Company had leave to imparle, and then to answer the declaration of the said John Dubois in the plea aforesaid, come again into the circuit court here the parties aforesaid, by their attorneys aforesaid.

And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, prays leave of the court here further to imparle until the first Monday of April next; and it has it. The same day is given to the said John Dubois, then and there, &c.

And now here at this day, to wit, the first Monday in April, in the year 1866, until which day the said the Philadelphia, Wilmington and Baltimore Railroad Company had leave to imparle, and then to answer the declaration of the said John Dubois in the plea aforesaid, come again into the said circuit court here the parties aforesaid, by their attorneys aforesaid.

8 And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, prays leave of the court here further to imparle until the first Monday in November next; and it has it. The same day is given to the said John Dubois, then and there, &c.

And now here at this day, to wit, the first Monday in November in the year 1866, until which day the said The Philadelphia, Wilmington and Baltimore Railroad Company had leave to imparle, and then to answer to the declaration of the said John Dubois in the plea aforesaid, come again into the circuit court here the parties aforesaid, by their attorneys aforesaid.

And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, pray leave of the court here further to imparle until the first Monday in April next; and it hath it. The same day is given to the said John Dubois, then and there, &c.

And now here at this day, to wit, the first Monday in April, in the year of our Lord 1867, until which day the said The Philadelphia, Wilmington and Baltimore Railroad Company had leave to imparle, and then to answer the declaration of the said John Dubois in the plea aforesaid; and afterwards, to wit, on the fourth day of October, in the year of our Lord 1867, the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, filed in court here the following pleas, to wit:

Defendant's pleas.

9 In the circuit court U. S. for the district of Maryland.

JOHN DUBOIS
vs.
THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAILROAD COMPANY.

1. The defendant in the above action comes here into court, and, by his attornies, William Schley, Thomas Donaldson, and John H. B. Latrobe, saith that the said defendant is not guilty of the wrong and injury charged against the said defendant in the premises; and of this the said defendant puts itself upon the country.

2. And for a further plea in this behalf the defendant, by leave of the court for this purpose first had and obtained, saith that the said plaintiff ought not to have and maintain his aforesaid action, because the letters-patent of the United States in the plaintiff's declaration set forth were obtained by fraud and imposition on the Patent Office of the United States, and are incompetent to confer any right on the plaintiff in the premises; and this the said defendant is ready to verify.

3. And for a further plea in this behalf, by leave of the court for this purpose first had and obtained, this defendant saith that the said John Dubois, the plaintiff, ought not to have or maintain his action
10 aforesaid, because this defendant saith that the said John Dubois is not the first and original inventor of the invention described in the letters-patent of the United States granted to him as alleged in the declaration in this case; and this the said defendant is ready to verify. Wherefore the said defendant prays judgment whether the said plaintiff his aforesaid action thereof against the said defendant to have or maintain ought, &c.

THOMAS DONALDSON.
JNO. H. B. LATROBE.
WILLIAM SCHLEY.

And afterwards, to wit, on the fifth day of October, in the year of our Lord 1867, the following agreement for commission was filed in court here, to wit:

Agreement for commission.

In the circuit court U. S. for the Maryland district.

JOHN DUBOIS
vs.
PHILADELPHIA, WILMINGTON & BALTIMORE R. R. Co.

Mr. CHEW: Please issue a commission to Henry S. Parsons, of Williamsport, Pennsylvania, to take testimony in the above cause, to be returned before Nov. 1st, 1867. Each party to have the right
11 to examine witnesses and cross-examine them on interrogatories prepared at the time.

I. N. STEELE &
L. M. REYNOLDS,
For Plaintiff.
JNO. H. B. LATROBE,
For Self.
T. DONALDSON &
W'M SCHLEY,
Of Counsel for Def't.

And afterwards, to wit, on the sixteenth day of October, in the year of our Lord 1867, the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, filed in court here the following notice of defence, to wit:

Defendant's notice of defence.

In the circuit court U. S. for the district of Maryland.

JOHN DUBOIS
vs.
PHILADELPHIA, WILMINGTON AND BALTIMORE Railroad Company.

To John Dubois, plaintiff in the above cause:

SIR: Take notice that at the trial of the above cause evidence will be offered to shew that you were not the original and first inventor in the improvement in the mode of building piers for bridges for which letters-patent of the United States were issued to you on the
12 23rd September, 1862, but that a prior knowledge of the improvement aforesaid was had by the parties whose names and residences are given in the skedule hereto annexed, and that the same had been used in the construction of the bridge of the defendants across the Susquehanna River between Havre de Grace & Perryville; and that the said improvement had been described in Mahan's Civil Engineering anterior to your supposed invention; and further, as special matter, testimony will be offered to shew that you surreptitiously and unjustly obtained your said patent for that which was in fact invented by George A. Parker, engineer of said bridge, who was using reasonable diligence in adapting and perfecting the same.

JNO. H. B. LATROBE.

Skedule of witnesses referred to above.

George A. Parker, South Lancaster, Mass.
Sam'l M. Felton, Thurton St'n, Delaware Co., P'a.
Otis B. Crossman, care of P., W. & B. R. R. Co., Phila.
Edwards Larkin, " " " "
Edward Livingston, New York City.
H. J. Lombart, Penn'a R. R. Co., Philad.
John Rice, Philadelphia.
Sam'l Harlan, jr., Wilmington, Dela.
Strickland Kneass, Philadelphia.
Benj. H. Latrobe, Baltimore.
J. Edgar Thomson, Penn'a R. R. Co., Phila.

13 Which said notice of defence is thus endorsed, to wit:

"Service of copy admitted.

"J. NEVETT STEELE.

"OCT. 16TH, 1867."

And thereupon, on motion of the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its said attorneys, it is ruled by the court here that the said John Dubois reply to the plea of the said The Philadelphia, Wilmington and Baltimore Railroad Company, or judgment by the court here will be entered against him in default thereof.

And the said John Dubois, by his attorneys aforesaid, prays leave to imparle until the first Monday in November next; and he hath it. The same day is given to the said The Philadelphia, Wilmington and Baltimore Railroad Company, then and there, &c.

At which said first Monday of November, to wit, in the year of our Lord 1867, until which day the said John Dubois had leave to imparle, and then to answer the pleas of the said The Philadelphia, Wilmington and Baltimore Railroad Company, come again into the circuit court here the parties aforesaid, by their attorneys aforesaid.

And the said John Dubois, by his attorneys aforesaid, files in court here the following replication, to wit:

Plaintiff's replication.

In the circuit court of the U. S., district of Maryland.

JOHN DUBOIS
vs.
THE PHILADELPHIA, WILMINGTON AND BALTIMORE Railroad Company.

14 1. The plaintiff joins issue on the first plea of the defendant.

2. As to the second plea of the defendant, the plaintiff says that the said patent was not obtained by fraud or imposition, as alleged in said plea; and of this the said plaintiff puts himself upon the country.

3. And as to the third plea of the defendant, the plaintiff says that he, the plaintiff, was the first and original inventor of [of] the invention described in said patent; and of this he puts himself on the country.

I. N. STEELE,
L. M. REYNOLDS,
For Plaintiff.

And the said The Philadelphia, Wilmington and Baltimore Railroad Company, by Thomas Donaldson, John H. B. Latrobe, and William Schley, its attorneys, files in court here the following rejoinder, to wit:

Defendant's rejoinder.

And the said defendant, as to the replication of the plaintiff to the second plea of the defendant, and whereof the said plaintiff puts himself on the country, the said defendant doth the like.

And as to the plaintiff's replication to the third plea of the de-
15 fendant, and whereof the said plaintiff puts himself upon the country, the said defendant doth the like.

THOMAS DONALDSON,
JOHN H. B. LATROBE,
WILLIAM SCHLEY,
Attorneys for Defendant.

Therefore let a jury thereon appear before the court here immediately, by whom, &c., and who neither, &c., to recognize, &c., because as well, &c.

Whereupon, for trying the issue aforesaid, it is ordered by the court here that twenty persons, from the panel of petit jurors returned to the court here by the marshal of the Maryland district aforesaid, be drawn by ballot; and thereupon the twenty persons being so drawn by ballot and written upon two lists, one of which said lists is delivered to the counsel for the respective parties, and the counsel for each of the said parties having stricken out four persons from the said lists, thereupon the remaining twelve persons, being called, come, to wit: James H.

Steele, David Martin, William H. Rogers, John W. Watkins, Charles F. Percivall, Thomas M. Wolfe, Benjamin F. Keller, John M. Hauck, Richard R. Waters, Julius B. Berret, Richard C. Bowie, William N. Burch, who, being impanelled and sworn to say the truth in the premises, upon their oath do say:

Verdict.

That the said The Philadelphia, Wilmington and Baltimore Railroad Company is guilty of the premises, in manner and form as the
16 said John Dubois hath above complained against it, and they assess the damages of him, the said John Dubois, by occasion of the premises, to the sum of ten thousand dollars.

Judgment.

Wherefore it is considered by the court here that the said John Dubois recover against the said The Philadelphia, Wilmington and Baltimore Railroad Company, as well the sum of twenty thousand dollars, the damages in the declaration of him, the said John Dubois, to be released upon the payment of the sum of ten thousand dollars, the damages assessed by the jury, with interest from the 29th day of November, 1867, as the sum of , adjudged by the court here unto the said John Dubois, on his assent, for his costs and charges by him about his suit in this behalf expended; and the said The Philadelphia, Wilmington and Baltimore Railroad Company in mercy, &c.

Memorandum.

Before the jurors aforesaid withdrew from the bar of the court here, the said The Philadelphia, Wilmington and Baltimore Railroad Company, by its attorneys aforesaid, tendered to the court here the following bill of exceptions; which was by the court here signed and sealed, and which is in form following, to wit:

Bill of exceptions.

In the circuit court of the U. S., in and for the fourth circuit & district of Maryland.

JOHN DUBOIS
vs.
THE PHILADELPHIA, WILMINGTON & BALTIMORE Railroad Company.

17 November term.

At the trial of this cause the plaintiff, to maintain the issues on his part joined, offered in evidence to the jury the following patent, specifications, and drawings:

18 And also a duly certified copy of the model of the said patent; and which, it is agreed, may be used in the Supreme Court with like effect as if the said copy were annexed to this bill of exception.

The plaintiff then proved by Cornelius P. Fields, who stated that he is and has been some years, since 1860, a resident of Havre de Grace, and resided there in 1862, during the construction of the company's bridge across the Susquehanna River, at that place, that he is a millwright, and acquainted a little practically with machinery, and a little by study. He stated that said bridge was commenced in the fall of 1862, and that the first pier were constructed as follows: a platform of timber was made, on which was placed an iron caisson, which was filled with masonry until it sank to the bottom. The first pier was built in water 8 or 10 feet deep; in deeper water the foundation was prepared by driving piles, which were cut off level with the bottom of the river. Guide-piles were then driven around it; the platform, with its floating coffer-dam, was then put inside of the piles, and some masonery was built in and against the caisson, until it wasn't safe to go down any further, when another section of iron was added to the caisson, and more masonery, additional sections, and mason-work being added from time to time. They then fixed an arrangement to suspend the platform and caisson on screws, and proceeded with their stone-work till the screws broke, after which they depended on the buoyancy of the water to keep the caisson up. Timbers were placed within the caisson to prevent collapse. The depth of the water was 42 feet. The screws were ready to be attached at the commencement. The 2nd pier built in sec-
19 tions, as they were required. Said witness stated that it would be very expensive to build a coffer-dam in that depth of water; that he himself had constructed several coffer-dams on a small scale, about mill-pits, in a depth of about six feet of water. A coffer-dam would have been far more expensive than the plan adopted. The sectional mode of building would save expense in comparison with a stationary coffer-dam. The screw was broken on the west side, about 10 or 15 feet from its lower end. Thinks it would not be practicable to build in deep water in a single section. After affixing the caisson to the platform in its place, they'd put in masonry till it sunk as far as was safe, when they would add another section of caisson, and then more masonry. When 16 or 18 feet down, the screw gave way.

The plaintiff also proved by John W. Pratt that he was in the employment of the company, and was on the bridge, off and on, during a portion of the period of its construction; and that, in his opinion, the screws were useless; and that it required a force of twelve men working at the screws to lower it about three inches in an hour; two sets of twelve men each. The screws attached to the platform raised or lowered the platform, as the winch was turned. He stated that the pier, when he saw it, after the breaking of the screws, was canted over, and when made again straight, which was done by taking some stone out of it, it was supported by the buoyancy of the water. Said witness further stated that the screws were used to accommodate the position of the structure to the tide; to lift it up, and to lower or let it down. The
20 most of the time the pier was supported by its buoyancy, and not by the screws; the screws were not strong enough to hold the pier without the aid of the buoyancy of the water. A day or two before the accident the pier rested on the screws. When the screws were locked the weight of the pier was sustained by the screws. The pier

was supported, most of the time, by its own buoyancy. Said witness further testified that all the caissons he saw had iron bottoms. There were no holes in the bottom of the caisson, or in the platform on which it rested, to pass over guide-piles.

The plaintiff also proved by Robert Vandever that plaintiff shewed him his plan as early as 1862. The plan was the same as that of the model which had been offered in evidence of the plaintiff. The plaintiff had told him before how it was to be done. This was before the plaintiff had shewn him any drawings of his plan for putting down piers in the river. Witness considered the plan feasible, and took the idea at once from plaintiff's explanations. Thinks plaintiff's plan better than a coffer-dam, but could form no estimate of the difference in cost. Knows no better plan than plaintiff's; but said that if the pier had to be built there, and there was no other plan for building it, except a coffer-dam, the plaintiff's plan would be worth, in his judgment, a very considerable—a very large amount of money. Building by sections would be much the cheapest plan, and leaving the caissons on the pier would add to its strength. The witness on cross-examination
21 stated that he had much experience in building coffer-dams and masonry in water, but no experience or knowledge of the plan of lowering piers by screws or pneumatic piles.

Howlett worked at the construction of the piers. Guide-piles driven down; the platform with caisson floated in, and guide-planks fastened to the piles. Masonry then built in first section of iron caisson, and when it sunk to a proper point, another section of caisson was added; and so till it settled on bottom. Braces of timber were used to strengthen caissons.

The plaintiff also proved by William Myers, was in the employ of defendant, driving and sawing off piles. The piles were driven close together for foundation, then sawed off level; guide-piles were driven around the foundation; and platforms, with caissons of iron 10 to 12 feet high, were floated in at one end left open for that purpose; the caisson was then loaded with stone till it sunk to within 2 feet of the water, and then another section of iron caisson was added, and so on until the pier rested on the bottom. No screws were used while witness was there, but platforms and caissons were guided down by plank guides. Pier No. 2 was finished by fall of 1864, and No. 3 was settled on its foundation in 1864. Water was about 30 feet deep at No. 2, and over 40 feet at No. 3.

The plaintiff also proved by James Wilson that he is a carpenter; that he commenced working on the defendant's bridge over the Susquehanna in 1863, and continued in the service of the defendant
22 until February, 1867; that the manner in which defendant built the piers of said bridge was as follows: Piles were driven for foundation diagonally, and then filled in and sawed off level with the bottom; then guide piles were driven on the outside of foundation, so as to admit the platform within them; platform was then floated in, and a section of iron caisson bolted on, and masonry was put in till the pier sunk to a given point, and then another section of caisson was added, and this process was continued until it settled on the bottom. In the case of the pier in 45 feet water, thinks there was from 10 to 15 feet of stone in the caisson when it reached the bottom; then went on to built up masonry to surface. The caissons were braced with timber. In the deep-water pier, strong braces were used, timber from 10 to 12 inches square. Screws were used only at pier No. 3. The pressure of water very great at 30 feet depth, and he would doubt whether

a small rod would prevent caisson from collapsing. The mode of balancing pier No. 3 was by screws. There were no arms for screws in the platforms of any of the piers west of No. 3. It would be the duty of an engineer building a pier, to put in such amount of bracing as would prevent collapse. The strength of rods used for that purpose would, of course, depend on their size; suppose there would be more than one rod each way necessary. There were no holes in any of the platforms for guide-piles to pass through.

The plaintiff also proved by Daniel W. Kelley that he was an
23 engineer in service of defendant from 1863 to 1866, and saw all the piers in course of construction. He described the mode of constructing the piers substantially as the last preceeding witness, and also stated that he was first at pier No. 3, when foundation partly constructed; afterwards, as the masonry was built up in caisson, and sections added to it, it sunk until its weight rested on the screws, and for several days they were lowered and raised as the tide fell or rose; then the screws broke and let one side of pier drop; they then hoisted out stone from the lower side, and worked at that till the caisson or platform floated level in the water; after they got on buoyancy of water, built in masonry, and added sections of caissons till the pier settled on its foundation. Screws were put there to sustain the pier and lower it—to regulate the lowering. Nothing was used on the other piers in place of the screws. The platforms were sustained by buoyancy. The screws were not used again after they broke.

The plaintiff also proved by himself, as a witness, that he lived in Williamsport, P'a, &c.; that in his patent and invention the guide-piles serve the double purpose of guiding the pier to its prepared foundation on the bottom of the river, and afterwards, being sawed off just above the upper surface of the platform on which the pier rested, the stumps answered the purpose of holding the pier in its position against lateral pressure. He said the caisson protects the masons while at work, and strengthens the pier very much, whether of wood or iron.

He said that he considered the construction of a stationary coffer-
24 dam in forty-five feet of water impracticable. Other modes than a coffer-dam being suggested to witness, he says he was not acquainted with such modes; and cannot therefore make any comparison of the expense. Thinks the use of a single caisson would add largely to the expense, and thinks a sectional caisson remaining permanently on the stone-work greatly preferable. He said that for piers in deep water, viz, No. 1, 2, 3, 5, 6, and 7, an estimate of a saving to the defendant of five thousand dollars a pier by the use of sectional caissons, as above described, would be very low in comparison with any plan known.

The plaintiff then proved by Thomas B. Stetson, that he is by profession a solicitor for patents; has been all his life devoted to the mechanical science, and is accustomed to attend as a witness in court for parties in patent causes; and from the description which he has heard given by Daniel W. Kelley and the other witness examined by plaintiff, is of opinion that the mode of building the piers adopted at the bridge at Havre de Grace, is the same as that described in the plaintiff's specification, a highly useful plan which is perfectly practicable, and better than any known to the witness. It is more economical as to money and time. Any estimate he could make of its comparative cost would be crude and rough. In shallow water there would be little difference. In deep water, plaintiff's plan would be 25 per cent. cheaper than any of the other modes—the best modes—known. The use of a caisson in

strengthening a pier was very great. Is without much experience in the superintendance of subaqueous constructions.

25 The defendants, to support the issue on their part, proved by Edward La[illegible], that he was assistant engineer under George A. Parker, the engineer of defendant's bridge. This witness gave the depth of water at each pier of the thirteen composing the bridge; the date and the manner of its construction as regarded the use of sectional caissons and other particulars; and he proved that piers No. 2, 3, 4, 5, and 6 were encased in iron as described in plaintiff's specification, and that of said five piers, Nos. 2 and 3 were the only piers which otherwise came within the scope of the present action by being built with sectional caissons before the bringing of this suit. Pier No. 2 was in twenty feet water, and pier No. 3 in water 40 feet deep. The piers were built on foundations of piles sawed off even with the bottom of the river; the spaces between the piles being filed up with small stones, when a skeleton frame, the size of the platform, to support the pier, was floated to the site of the pier; piles were then driven around the space intended for the foundation and capped twelve feet above the water, and on the caps was built a platform of sufficient height to allow the caisson on the platform to be floated under it. The caisson & platform were then floated out, and passing through the space left open on the south side for their admission, were placed immediately over the foundation on which the platform was to rest, and the piles on the south side driven so as to enclose the platform. Furring was then fastened to the piles, so that the edges next to the platform, when planed off and plumbed by a spirit-level, would serve as a guide to the platform in its descent. A framing was then built on the platform whose inner

26 sides corresponding with the shape of the platform. Screws were then placed with their upper extremities supported by the capping of the piles and passing through arms on the platform projecting to receive them, and through nuts below, to near the bottom where they hung loosely. These screws were introduced to raise or lower the platform, as the winch which controlled their motion was turned one way or the other. The platform was kept in place by the furring, and the only use of the screws was to regulate the descent of the platform. The arms through which the screws past, projecting from the platform, served no purpose as guides, but were connected with the screws only. The side piles to which the furring was attached, were strengthened and steadied by spur shores. The shaping frame guided the platform, resting against the framing as the platform descended prevented the tilting of the pier. While the screws were in operation they were turned in lowering the platform as additional masonry was added, and continued to be used in pier No. 2 till it was lowered to its foundation by the screws. The platform was guided to its foundation by the furring attached to the piles. No attempt was made to use the piles to guide the platform. In some instances these piles were from four to six feet from the edge of the platform; some driven so purposely, and others on account of meeting with obstructions. If the piles were driven too near, they were removed by divers. To drive a pile exactly vertical was not possible in one case out of a hundred. In this particular case the attempt was made always to drive them true. No. 3 was built in sections,

27 and lowered between two wharves built on vertical piles, instead of being built under a frame, as in the case of No. 2, The wharf was removed when the pier was completed and the piles sawed off; none of them passing through or touching the sides of the platform. The bottom of the platform was from four to five feet from the top of the

foundation of piles, when it was righted after the givin way of the screws, and the upper edge of the caisson was then more than five feet above the surface of the water. When the screws gave way the pier tilted, and the caisson rested against the western wharf. Its equilibrum was restored by removing a portion of the masonry and letting the screws on the eastern side run down; they were taken vertically out and caisson was allowed to float. Afterwards blocks and falls to keep the caisson from tipping were used, and ropes were used, attached to the wharves to guide it. The masonry was then put in again, and the dependence was on buoyancy. A shaping frame was not used in No. 3, but screws answered the purpose till they broke, when ropes were used; when the screws were run out there was little inclination to tip in No. 3, except from light winds. In two or three days after the accident the pier reached the bottom. In answer to a question by the court, the witness said it was not the intention to put much weight on the screws; the buoyancy of the pier was relied on to keep it up. The same screws were used on No. 2 that had been used on No. 3, reduced in length to suit the lesser depth of water. The masonry was built within the pier, near to the caisson, and where it did not touch it iron wedges were driven in. The internal bracing was very heavy; 4 braces of
28 timber were raised, the lower part being of oak timber 15 inches square. Iron rods, such as indicated in Dubois' specification, would have been altogether inadequate to resist the pressure of the water.

The first knowledge witness had of sectional caissons was derived from George A. Parker in the early part of 1862, the description being of caissons of boiler-iron to be lowered by chains or screws; the size of the piers was not then determined, and witness does not recollect what was said about the chains or screws. The next time witness heard of them was in May, 1862, when he became connected with the work, and had frequent conversations with Mr. Parker in regard to it, and made all or nearly all of the plans for the bridge.

This witness was present at a conversation between Mr. Parker and Mr. Dubois, he thinks, in June, 1862. Dubois was introduced to Mr. Parker by Mr. Crossman, and described to him his, Dubois', plan of building the piers across the Susquehannah; a wooden crib filled with loose stone; after which Parker described to Dubois his, P.'s, plan of building in caissons—substantially the same exhibited in the original model of Mr. Parker produced from Patent Office. (It is agreed that the model may be used in the argument of the Supreme Court as if it were made a part of this bill of exceptions and attached thereto.)

Questioned in x-examination in regard to the cost of piers Nos. 2 and 3, this witness said that the cost of each pier was not kept separately from the cost of the whole work, though, if required, the actual cost could be, in time, approximately ascertained. It was not intended
29 to carry any substantial part of the weight of the piers on the screws. The dependance was in their buoyancy. The six screws could have been loaded up to 40 tons. No attempt was made to drive vertical piles as guides in lowering the platform to its place, though it was always tried to drive them true. None of the piles were at the immediate edge of the platform, which was guided by the furring. The piles could not guide it because they were not vertical. To pass the arms of the platform by the piles the platform was raised on one side as it was brought within the piles; arms were 18 inches long.

Joshua Bryant testified that he was ticket and freight agent of the defendants at Havre de Grace when the plaintiff came to him in June,

1862, and asked who was the head man about building the bridge, as he, pl'ff, wanted to contract with the company for building it, which he could do cheaper than the company could. In reply to a question as to what kind of piers he could use, he said he would build crib-work; that he had built such near Williamsport, which had stood the ice and freshets, and talked generally about wooden crib-work filled with loose stone. Not knowing Mr. Parker, witness introduced Dubois to Mr. Crossman, and heard no more till November, 1862, when he saw Dubois again, who said that if the company would not give him a contract to build the bridge he would lay an injunction on them, as they were using his patent. Subsequently when this witness testified to the facts, on another occasion, Dubois said that his testimony was all true as he gave it then, and he gives it in the same way now. At this time the
30 plaintiff said that the company, the defendants, had not treated him rightly.

C. B. Crossman. In May or June Bryan introduced pl't'ff to witness, and plaintiff said he wanted an interview with Mr. Parker to explain his plan of getting the foundations of the Susquehanna bridge. He said the timber foundation was the best that could be got there—crib-piers filled with stone. Witness saw Mr. Parker, who said he would see Mr. Dubois. Witness took pl't'ff to the office of Mr. Felton, the president of the company—recollecting, however, no conversation there. Afterwards he took him to the office of Mr. Larkin and introduced him to Mr. Parker.

On cross-examination this witness that no mention was made by plaintiff of the word "contract." When Dubois asked for an introduction, the object he stated was to talk to Mr. Parker about the foundations of the bridge. When asked the question, "Did not Dubois say that if you would help him to get the contract, he would give you some part of the profits?" the witness answered, "No, he did not, but described the crib-work for the foundations," never describing sectional caissons. Had business transactions with Dubois in 1860. Had notified Dubois to meet him to go on to Philadelphia to see Mr. Parker; can't say on what train, or on what day of the week, he went with Dubois to Philadelphia, or whether he got out at ferry. Dubois has charged him with having exposed his plan; is in employ of defendant, superintendant of bridges.

George A. Parker proved that he was a civil engineer since
31 1838, and had designed and built the bridge of the defendants at Havre de Grace. The first steps to this end were taken in 1853; engineers were appointed, and surveys made, and some work done on the foundations. The work was suspended until 1861–'2, when witness recommended the building of one pier. This was late in the winter of 1861, or early in the spring of 1862. Witness in the mean time was maturing his plan, especially as to No. 3. First question was as good foundation. Doubted whether a coffer-dam was practicable. Examined the Harlem bridge built with pneumatic piles. The idea of witness was [was] a wrought-iron tube of the shape of the pier, water-tight. Went to New York, and saw Mr. Livingston, and gave him the idea; made many investigations. The wrought iron might be made entire or in sections. The next thing was to get the tube into its position safely. Witness here referred to European experience, and stated that he went to Harland & H———, in Wilmington, and made experiments there in connection with screws which could be made to bear seventy-four tons each, and then the question was whether screws, chains, or ropes should be used, and screws were finally adopted as the best. It had not then

been determined whether the iron should be left on the piers or not. As regards the use of sections for the casing witness supposed he could use them as it was expedient; did not know the time when he did not think of them. The idea was not new. There was not the slightest novelty in it. The idea of putting on layers was as common as
32 the use of block and fall. Witness recollected distinctly his interview with the plaintiff. It was in the spring of 1862, when the work was well got on with, and estimates had been received from Harlan & Hollingsworth in regard to the cost of the iron in the piers. Mr. Crossman told me, "A man who had some notions about bridge-building wants to see you," and a time was named. One morning, in Larkin's office, Crossman introduced Dubois to me. Several persons were in the office, Larkin among them. Dubois, in the conversation that took place, described a simple wooden structure, a crib made of raft-timbers put together in the ordinary way, in form a parallelogram, to be built partly on shore and partly in the river. How he was to sink it, the witness did not remember or how he was to guide it to the bottom. It was to be filled with rough stones, and was to sink as he filled it. Witness asked him if he was aware his masonry would be torn away by the floods. When the plaintiff replied he would throw out ballast on the outside and bring it to the top of the pier. [he would throw out ballast on the outside and bring it to the top of the pier.]

Witness then said, "Now, I will tell you my plan," and proceeded to describe it accordingly when the plaintiff remarked, "I like your plan all except the iron." Witness then replied that the iron is the only new thing about it—the especially valuable thing. The plaintiff then objected to the expence of iron, when the witness made a calculation showing the contrary; the plaintiff then said, "Your plan is the best," and asked whether witness could not give him something to do for the bridge, as
33 he had a lumber yard and saw mill at Havre de Grace. Witness promised to apply to him if there was any occasion, & they parted. Afterwards, meeting the plaintiff, the latter said to him, "I understand you claim to be the inventor of this way of putting down the piers." To which witness replied, "Don't speak to me again during your natural life. If you have any business with me or the company, do it through your lawyer." This was in the fall of 1862.

With regard to the state of the art of engineering at the time of building the piers the use of water-tight caissons was known to all engineers of education; it was a hundred years old; the cases are rare where sectional caissons are required; it is better to build entire caissons in water not more than twenty feet deep, but as an ordinary mode sectional caissons were common among engineers; they were described in the most elementary works. Caissons were generally of wood, but also to some extent of iron. Wooden caissons were made of rough squared logs divided by cross-timbers, sometimes with bottoms, and sometimes without, sunk with stones, having guide-piles around them, other sections of logs were then added until the work was complete; even ruder modes had been used in Europe and described in engineering text-books.

Another form of caisson had been used in different parts of the world, made of cast iron or wood and water-tight, sometimes entire and sometimes in divisions, lowered in various ways, guided sometimes by piles, sometimes otherwise. It is next to impossible to build a caisson
34 without it being in sections in some sense. Caissons were guided to their places in various ways, generally surrounding piles were driven, not very close to the caissons but close enough to prevent lateral movement, by bracing out from the caisson itself and letting the braces

touch the guide-piles. Guide-piles were used prior to 1860; they are things presupposed. It might be possible to get along without them, but no one would undertake it.

This matter of building by sections has been taught by me to students in my office for twenty years; my tex-books used in the office taught the same thing, and with guide-piles as the most economical and simple mode of guiding the caisson in its descent.

The pine model shows the process used at the bridge; the particular feature is the shaping frame. Screws were not used but at two of the piers. Witness would have continued to use them if he had had more of them; they were very expensive; got on very well without them.

Cross-examined, this witness stated the appointment was made by Crossman for the meeting with Dubois. It was only a few days before this information that Crossman mentioned to him that Dubois desired to see him. Witness lived at Chester; does not recollect whether Crossman came up in the train with him that morning; does not recollect, but it is likely that Crossman did come in and tell him that he was going to bring in Dubois, but don't recollect it distinctly; don't recollect at all the words used at that conversation; did not know what
35 the ulterior object of the man was. Witness said, in answer to a question, that there was no such words used as that "he (Dubois) came to get a contract to build the piers." The word "contract" was not mentioned; nothing looking to a contract was said. Witness never asked the plaintiff if he had patented any plan, nor was any allusion made to a patent. When asked whether he had seen before what had been done at the Susquehanna, he answered in the negative. A caisson never does become a part of the pier, nor homogenous; it is auxiliary, it is a help; it gives strength in a certain sense, but ought not to be called a part of the pier, as it could be taken off and leave a good pier. When witness talked to Dubois he did not intend to put bottoms to the caissons, and stated to Dubois that he intended to calk them.

John Rice. Had a conversation with Mr. George A. Parker in the latter part of December, 1861, when Parker described the construction of the piers with iron caissons in sections with masonry inside in the same way that was subsequently adopted for the bridge of the defendants; had no reason to think the plan was otherwise than as was described.

Edward S. Renwick. Educated as a civil and mechanical engineer, and having a large experience, which he described, and acting as a witness in patent cases, explained the different modes of building piers in deep water prior to 1860, by coffer-dams, by laying pier in one piece or in sections added as the pier progressed, and guided by piles or
36 ropes, the casing being sometimes removed and sometimes left as a protection to the pier; the pneumatic pile; a platform sustained by chains and screws and lowered down as the building progressed; also iron screw piles. Witness knew of all those modes prior to 1860. Acquired this information in part from books published prior to 1860. Has never seen a pier either built or in process of building by sectional caissons added from time to time and stone-work built in. Questioned in regard to comparative cost witness selected three of the most prominent modes just referred to: first, the complete caisson; 2, the sectional caisson; and, 3, the platform lowered by means of screws and chains. Each one of these modes he considered cheaper than the mode described in Dubois' patent, and proceeded to give his reasons at length. The difficulties attending Dubois' process would make it more costly than either of the others. Guide-piles would have to be driven verti-

cally and parallel to each other, which would be extremely difficult; if found crooked they would have to be pulled up and redriven until, if possible, all were made vertical and parallel; the driving of the foundation piles would then displace them, when they would probably have again to be pulled up. The platform, built on land and floated to its place, would have to be lifted over the piles so that it might slip through the holes cut in it, or if built on the piles and then let down, a temporary frame would have to be constructed which would be an expensive process. If the platform tipped at all in descending there would
37 be a jam, and the specification describes no mode of steadying it in its descent.

The term "strong rods" as understood by engineers has reference to resisting tention. In crib-work they are used to tie the sides together so as to prevent their bursting apart with the pressure of the stone within them; cross-timbers knotched in the sides of the crib would serve the same purpose; strong rods would be useless to prevent the sides of the caisson from colapsing, strong bracing would be required.

Witness has read the specification of the plaintiff's patent and understands the invention described therein, and has heard the testimony as to the construction of the defendants' bridge given by Howlett & Larkin. In defendants' pier No. 3, the platform and caisson seem to have been sustained by screws and the buoyancy of the water, with no guiding except by the weight of the suspended mass, until within four feet of the bottom, and then the caisson was so far above the water that no addition was necessary after it reached the foundation; ropes and block and fall seem to have been used to guide after the screws gave way.

Pier No. 2, built in sectional caissons, was guided by a shaping frame and piles, and lowered by screws to the bottom; other caissons were used entire with shaping frames and guide-piles; in all, the iron caisson was left upon the pier. The mode of building and setting these piers was substantially different from that described by the plaintiff;
38 the mode of guiding and sustaining them was substantially different; the use of the iron for strengthening the piers is substantially the same. As witness understands the description of Dubois' invention, the sides of the caissons are to be in sections attached to the platform with holes in the corners to go over the piles; such a caisson was not used in setting any of the defendants' piers; the caisson used had an iron bottom, its platform had no holes in it for the piles. According to the specification the stability of the structure depends on sliding the platform and caisson over the guide-piles. Defendants used no such mode. Plaintiff's guide-piles operate through holes in the platform, above which they are to be sawed off when the platform is at the bottom, the stumps preventing lateral motion. The defendants' guide-piles operate through furring, removed when the work is done. In pier No. 2 the screws bore a material part of the weight, distinguishing it from the plaintiff's description; there were no guide-piles in No. 3. Looking at the state of the art prior to 1860, the novelty of the plaintiff's specification consists in perforating the platform with holes through which piles driven vertically, passing, may guide it to the bottom, and in sawing off those piles above the platform so as to leave their stumps as a means of preventing lateral motion.

On cross-examination the witness stated that if the substantial part of the weight of "2" and "3" was supported by the water, and screws were merely used as guides, it would be an infringement of a sec-
39 tional and floating caisson supported by the water. Looks at the plaintiff's specification as containing three points: first, building

and setting; second, piles used for guiding and to prevent lateral movement; and, third, casing the [the] piers with iron. If No 3 was built in separate sections and subsequent sections were added as required, to that extent it would be the same as the mode described by the plaintiff. If pier No. 3 was supported buoyancy alone, to that extent it would be the same as that part of Dubois' description. The use of screws was not the only difference in pier No. 3. A pier cannot be set without guiding it. In this pier, as regards the setting, up to the accident there were no means of guiding whatever other than the weight hanging upon the screws. If it did not hang upon the screws it differed from plaintiff's specification in not being guided at all. In No. 2 the guiding was furring fixed to the piles instead of vertical piles through holes in the platform which would slide down on the piles which guided it to the bottom; the furring was the guide, and the piles merely held the furring in position. It made no difference how far off the guide-piles were placed, the caissons being steadied as to the upper end by the shaping frame; without this it would be difficult to keep the caisson so evenly weighted as to prevent tipping. Witness had no doubt there would be danger of tipping however long the platform and pier. In plaintiff's plan putting in the caisson would require great care to prevent jaming; not so in defendants' plan of shaping frame. The additional expense at
40 pier No. 3 of using an entire caisson would not exceed six hundred dollars, according to an estimate in detail that witness made upon the stand; admitting plan to be practicable, building the pier on a platform and lowering it by screws, without a caisson, would be the cheapest. Iron might be put on the caisson as it went down, and afterwards the top part alone would have to be protected. Questioned as to the meaning of the idea conveyed by the word "rod," witness states that it universally relates to a small size as compared with length, exerting tensile strength. Such is unmistakably the meaning conveyed by it in the patent, where it shows an ignorance of the system of building under water, where it is used as though to guard against a bursting strain; the drawings give the same idea. An engineer who understood his business would brace against external pressure and would not use rods at all.

Has never seen in process of construction a pier built in a sectional caisson, where caissons were added from time to time, and where the caisson formed a part of the pier when completed. Witnesses information in regard to sectional caissons is derived from books. There is Vose's book and the description at page 269 of a sectional caisson and guide-piles; the bracing there is left to the discretion of the engineer. There is the space of a foot between the pier and the caisson, the pier being uniform in size and not tapering. Witness has seen a description of a cast-iron sectional pier used in constructing the bridge over the Avon. The same is partially described in Tracey very briefly.
41 The description in Mahan refers to an entire caisson. The pier shown in the plaintiff's drawings is of uniform size throughout.

S. M. Felton, civil engineer by profession, has been president of defendants for fourteen years, from 1851 to 1865. After stating the preliminary measures for the construction of the bridge, witness stated that after frequent interviews with Mr. George A. Parker, relating to it, Mr. Parker was employed and devoted himself to studying plans for it. Witnesses own views were in favor of sinking solid masonry on platforms by screws without caissons. Mr. Parker came on in December, 1861. Soon after he came on, said he "had been thinking of building a caisson." This must of course have been in sections. This was in the

early winter of 1861. These conversations assumed no definite shape, until finally thinking a caisson would give more strength and power to resist the great pressure, I assented to his plan. This must have been in the course of the winter. Finally I agreed to incur the extra expence of his plan. The screw method preferred by me was very old. Caissons were known long before that. In deep water they must have been sectional; stone could not have been hoisted over them except at enormous expense. Pneumatic piles were also known, in which the pile remained for the protection of the masonry. Without making an actual estimate, witness is satisfied that the screw plan without caissons is cheaper than that adopted. Witness recollects two interviews with the plaintiff, but his recollection about them not distinct. Crossman
42 brought plaintiff to witnesses office, and he spoke with witness about the foundations of the bridge. No distinct recollection of what was the plan of Dubois, but thinks something was said about crib-work, and witness has a strong impression that nothing but crib-work was mentioned by plaintiff, or that the plan subsequently adopted was discussed. At a subsequent interview, in October, 1862, appointed by correspondence between witness & plaintiff, plaintiff presented patents which were not particularly examined, and he was referred to the engineer, as was the practice of witness in all such matters.

Letter from plaintiff to S. M. Felton, pres't, &c.

[Copy.]

HAVRE DE GRACE, M'D, *Oct.* 11, 1862.

DEAR SIR: Having made several valuable improvements upon the plans now in use for building piers in deep water, also for raising the superstructure of bridges without the use of false works, upon which I have secured letters-patent from the United States, in view of the erection by your company of a bridge over the Susquehanna at this place, it would afford me much pleasure to submit my plans to your inspection. I purpose visiting Williamsport, Penn'a, the first of next week. If you should desire to see & examine my plans, you can drop me a line at W'msport. I will return via Philad'a on or about the 17th inst., and call upon you with the drawings, &c., of my improvements
43 for your inspection.

Very respectfully yours, &c.,
(Signed) JOHN DUBOIS,
Per A. H. MANN.

To S. M. FELTON, Esq.,
Pres't P., W. & B. R. R. Co., Philadelphia.

At foot of the original, in the handwriting of S. M. Felton, are written these words:

Say to Mr. Dubois I will meet him here on Monday next.—S. M. F.

Letter from S. M. Felton to plaintiff.

[Copy.]

P., W. & B. R. R. CO., PRESIDENT'S OFFICE,
Philadelphia, Oct. 13, 1862.

JOHN DUBOIS, Esq.

DEAR SIR: Yours of the 11th, on the subject of your improvements,

rec'd. I should like to have an interview with you on the subject, and will meet you here in my office on Monday next.

Yours, &c.,

S. M. FELTON,
Per CHA'S GRAFF.

Letter from plaintiff to S. M. Felton, pres't.

[Copy.]

44 WILLIAMSPORT, P'A, *Oct.* 15, 1862.

S. M. FELTON, Esq.,
President P., W. & B. R. R.

DEAR SIR: Your note of 13th inst. fixing Monday, 20th, as the day on which you will see me, has been received. I shall endeavor to be at your office at the time appointed.

Yours, truly,
(Signed)

JOHN DUBOIS,
Per VANFLEET.

Letter from plaintiff to ———.

[Copy.]

HAVRE DE GRACE, *Oct.* 23, 1862.

DEAR SIR: After my interview with you, and upon reflection, my impression was that you desired that I should see Mr. Parker, for the purpose of making some arrangement with him, as the companies chief engineer, for the use of my improvements. I meet Mr. Parker here yesterday at Mr. Hopper's hotel, and mentioned to him that I had called upon you at your request, and had exhibited to you the drawings, &c., of my improvements, and that you had referred me to him. His reply was that he did not wish to have any talk with me personally on
45 any subject; that he did not want to get mad, and therefore did not want to have any conversation with me, but that if I had any business with him as agent or engineer of the company, and presented it in proper form, he would attend to it.

This reception upon the part of Mr. Parker precludes any further intercourse upon my part with him. If you should desire it I will be happy at any time to meet and confer with you in regard to my improvements.

Very respectfully, yours,
(Signed)

JOHN DUBOIS,
Per A. H. MANN.

On cross-examination witness stated that he is the brother-in-law of Mr. Parker; that he does not recollect that he ever saw Mr. Parker's patent, (now produced.) Defendant paid the expense of getting out this patent. It was applied for after the plaintiff had threatened to sue them. The plaintiff wrote to the defendants and a correspondence ensued.

In refering the plaintiff to the engineer, it was not to make any arrangement. Witness did not think there was anything practicable in plaintiff's plans, but did not examine it particularly. He explained them sufficiently to give witness a general idea. Witnesses impression is that he told plaintiff that the company had a better plan, and had an iron caisson, and plaintiff said iron might be used as well as

46 wood. Witness never built a sectional caisson, but was perfectly familiar with the process, from books and from intercourse with other engineers. Witness could not name any particular person from whom he heard of the process, yet knows the fact as distinctly as if he could give a dozen authorities. Witness does not know the cost of either pier No. 2 or pier No. 3, as the cost was not kept separately.

Strickland Kneass was examined with regard to the state of the art prior to 1860, and the difference between the plaintiff's invention, as described in his specification, and the plan adopted by the defendants.

William J. McAlpine was also examined to the above effect, and both these witnesses testified as the witness Edward S. Renwick had already done, as did also witness Charles McAlpine. Mr. Kneass was chief engineer of the city of Philadelphia; Mr. W'm McAlpine was a civil engineer of forty years' standing, and Mr. Charles McAlpine an engineer of twenty years.

The defendants then offered in evidence the record in the interfereance case before the Commissioner of Patents between George A. Parker and John Duboise, which the court rejected.

Parker's patent.

(Parker's patent.)

47 The plaintiff in rebuttal was sworn as a witness and proved that some time in June, 1862, he called on the witness Bryan to obtain information about the bridge going to be built over the Susquehanna. Bryan referred the witness to the witness Crossman, whom he asked to introduce witness to the president of the company and Mr. Parker, for the purpose of getting a contract for the building of the bridge. Crossman said they had decided to go on building cut-stone piers on platforms, lowering them with screws as they progressed. Witness said he had a plan to accomplish the same thing and save much money, and, if through him witness could get a contract for building the piers, he would give him a share of the profits. Crossman told witness afterwards, he had obtained an interview at a time named; in conversation with Crossman after the above proposition to him, he seemed to assent to it. Witness described to him confidentially his plan, which was to be a secret between them. It was to have piles prepared for the foundation, around which piles were to be driven to steady the work, and also when settling to guide it to its proper place. A water-tight platform was then to be made, on which was to be built a shell of the size and shape of the pier into which masonry was to be laid until it sunk near the water, when another section of the shell was to be added and more stone laid on and so on. When asked what material witness would use, he said he thought a crib-work frame caulked and pitched till
48 near the surface of the river, and then boiler iron, [and then boiler iron] to resist ice, etc., or the whole tube might be built of boiler iron. Crossman seemed to think the plan a good one. Seeing him in Wilmington, he told witness Monday morning was fixed for the interview with Felton & Parker, and agreed to start in the early train for Philadelphia; on that morning witness remained on the sidewalk till the conductor called "All aboard," but did not see Crossman. Witness got on about the middle of the train, while Crossman must have got on near the end. After going some distance, Crossman passed witness in the car in which he sat without noticeing him; at Chester missed Crossman, expected to catch him in Philadelphia. Not seeing him there, witness

went among the offices of the railroad building at Philadelphia; saw the president who said neither Parker or Crossman had come. Crossman did not come up at the ten o'clock train. Going up among the offices, saw Crossman come out of a door; meeting witness, he turned back with him into the same door and introduced him to Mr. Parker, saying he would wait without. Parker asked witness what his business was; witness said, "I want to know if you are going to build the bridge, and, if so, by contract, or otherwise." Was told he had not determined, and was asked whether witness had built any bridge, asking about the Williamsport bridge, which witness told him he had built. Witness told him of the crib-work piers there. Parker asked witness what
49 was his plan, and was answered, "I did not come to suggest any plan, but to contract for building the piers." Parker then asked witness if he had patented any plan and was told "No;" when he (Parker) described to witness all that the latter had told Crossman, except that he used boiler iron in the construction of the case all the way up, and used screws or chains, and an iron bottom to the caisson. Witness said it was in some respects a good plan and in others too expensive. Witness explained why he thought crib-work caulked and pitched until it got near the surface of the water would be better and cheaper, and that an iron bottom to the caisson was unnecessary, that one bolted by a flange would be just as good. Parker then made calculations to show the expense of the entire caisson. Witness did not then state to Parker that the plan was his own, because from circumstances he felt sure that Crossman had disclosed it. Witness further stated that he at once applied for and obtained his patent. Crossman, being charged with having disclosed witnesses plan to Parker denied it, and then said perhaps he did and would think it over. At a subsequent interview he denied about a plan. Witness referred to the correspondence already in evidence, and said that, having called on Mr. Parker at Havre de Grace, the interview as stated in the testimony of Parker took place. Witness then further stated his experience in connection with the building of piers, and that he made the invention claimed here as early as March, 1861, describing it to witnesses in several ways according to their intel-
50 ligence, to some minutely, and to others merely that he had a plan to dispense with a stationary coffer-dam and screws; and among them to William Loyd he described it more minutely, to whom, in the fall of 1861, in November, perhaps, or December, witness said a foundation was to be prepaired, guide-piles driven, a platform of timber, water-tight, to be placed within the piles, then a section of the tube fastened to it of the shape of the pier, masonry to be built inside until it settled so as to require another section, and so on, till the platform reached the foundation. Loyd afterwards said I could not get it to work, the iron tube was so much heavier than the water. I explained to him that this was not so used; also told him I should brace it so as to resist pressure; he then said it was perfectly practicable. Witness named other persons to whom he had described it. Witness then proceeded to describe a plan for the execution of the work according to his specification to meet the objections mentioned by Renwick & others, & said that the caisson was a shell which formed a part of the pier when finished just as much as the masonry inside of it. Witness further proceeded to describe the differences which he conceived to exist between the plans described by others and in books and the plan of witness, and said that the plan in Vose resembled his in various parts, but there was the wide difference between them that Vose's plan was a box constructed of timber for the workmen to stand in, and the stone work was not built

up to and against the casing so that the latter would constitute a part of the pier.

51 On cross-examination witness said he had known the witness Crossman since 1860; knew that he was in the service of the defendants. Witness knew nothing against his honesty. He did propose that if he would use his influence to get the contract for me, witness would give him a share of the profits, a fact which witness did not intend to be communicated to the company and thought he would keep to himself as he ought to have done. Witness thought it honest because Crossman was not the person to give out the contract, and it would have been for the advantage of the company. When Mr. Parker explained his plan witness never told him it was his. Witness had determined to adopt guide-piles through the platform as described in the patent a very short time after he had matured the general plan, in April or May, 1861. The fact of the advantage of cutting off the piles and leaving the stumps to hold the platform decided him. In common crib caisson the external pressure of the water is nothing. If stone is put in, provision must be made against bursting pressure, and rods would be sufficient for the purpose as well as timbers notched into the sides. Rods would resist external pressure & are sufficient for that purpose. Masonry going out to caisson as part of his invention. No engineer who understood his business would have any difficulty in putting the platform on the piles. The experience of witness in building piers was confined to the boom as Williamsport, in six or eight feet water, where he built 60 or 70 piers, and a bridge at the same

52 place.

Thomas B. Stetson, examined as an expert on the part of the plaintiff, testified as to the state of the art of building piers in deep water prior to 1860; that there were three [systems] *modes*, and many varieties, agreeing with the witnesses for the defendant except as to floating caissons. The floating box was known to engineers of the profession, but not as described in the patent and as used in the building of the piers of the Susquehanna bridge, (independant of the screws.) Sectional caissons or tubes, not floating, but fixed, were known. The pneumatic pile is used in sections but does not float. Being asked what is new in the patent of the plaintiff, witness replied that piles through holes were new, but there were other parts that were new of greater importance. It was new to build the masonry directly up to the sides of a floating caisson, and so to brace it; new to make a caisson of iron so that it may serve as a part of the pier, together with the wood foundation, the wood yielding to the shape of the pile foundation; new to have iron sides with a timber bottom. These points are new and useful. New particularly to build up in sections. When stone-work was built out to sides of caisson, thinner iron can be then used. New to build up in nicely-fitting sections, not one log at a time; this plan involves necessity of ready-made sections, more economical than plan described by Vose; description is somewhat vague, and there is a material and substantial difference between their plan & Vose's. The guid-

53 ing down of such a structure, a sectionally-constructed caisson, by guide-piles through holes, the stumps pinning down the pier afterwards, was new, important, and substantial with the other differences already referred to. Witness agreed in part with the witness Renwick as to the common meaning of the term "rods." In the connection in which the word "rods" is used in the plaintiff's patent, would consider it as merely meant to resist pressure, and thinks any skilled person reading the patent would so understand. Any mechanic constructing caisson would

be expected to proportion the strength of the bracing to the pressure anticipated and the material employed. Witness has heard witness Larkin's description of the construction of the piers, and regards it as substantially the same as that described in the patent of plaintiff. Larkin stated that all the piers were made of iron on a timber platform, the masonry built up to their sides making a tight job, and that the iron was left on as a part of the pier. Piers No. 3 & No. 2 were made in sections of more than one piece; that is, in complete sections goin clear around. If piles are sawed off level with the bottom of the platform, there would be no infringement; if some were sawed off not quite so low, then there would be. Witness agrees with Dubois as to the practicability of putting the platform over the piles.

On cross-examination witness stated, in regard to his personal experience in mechanical construction, had worked with his hands on locomotive and track machines, principally on the latter; had never
54 been engaged in construction of heavy frameing or the raising of heavy weights, or in making calculations. On one occassion made plans for a pumping engine which required heavy framing. Had read extensively on all these subjects and was familiar with them.

(It is agreed by counsel that "Vose's Hand-book" referred to by the witnesses may be used in the argument in the Supreme Court.)

Plaintiff further proved by John G. Redding, a resident of New Jersey, that he knew the plaintiff for fourteen , and had had conversations with him about building piers in deep water about the spring or early part of summer of 1861. Was in the cars on the boat at Susquehanna. Remarked the R. R. co. had in contemplation the building of a bridge; that it was a mammoth undertaking. Dubois said it could easily be done; that he had been studying the matter & had a plan by which the piers could be built much cheaper than ever before. Said he did not care to divulge it, as he expected to make something pretty nice out of it. I told there was not much danger in divulging it to me as I was not a mechanic, and he said, "If you will keep quiet I will give you my idea." He stated that he would make the foundation and drive guide-piles, in the enclosure of which he would erect a strong platform of timber, on which he would put a heavy boiler-iron caisson, water-tight, and keep adding sections to it as it sunk faster than it was
55 filled up with the masonry that was built within it, and would continue to add sections and build up masonry until it reached the foundation. Upon the witness asking Dubois whether the iron was to be left as a part of the pier, he said, certainly, the masonry would come tight up to it and it would be part and parcel of the pier. Witness fixes the date of conversation by his going to Magnolia on the defendant's road, with his accounts as treasurer of a committee on sawed logs carried off by freshet. Was to meet Gen. Cadwalleder at Magnolia, but he did not come but sent a note, (which was produced,) dated March 25th, 1861.

Hiram Woodward, of Clearfield County, Pennsylvania, proved that he has known Dubois for many years; that the plaintiff told him in June of 1861, that he had matured a plan by which he could build piers in deep water from thirty to forty feet deep cheaper than by the old plans and which he intended to patent, but there was a talk about building a bridge over the Susquehanna and he wanted to get a contract.

The testimony of this witness as to the plan of the plaintiff corresponded with that of Redding. Witness asked how he would hold the pier; he said it could be done by various means; his plan was to drive piles on outer edge of platform. The description was so clear that wit-

ness could have constructed a pier from it. His business that of a lumber man. Has built dams.

William Loyd, of Williamsport, testified that he had known the plaintiff from childhood, and had conversed with him in regard
56 to his plan at various times, and first in the latter part of November, 1861. The testimony of this witness corresponded substantially with that of Mr. Redding. Witness asked Dubois how he would prevent the casing from being crushed in by the water; he replied he would strengthen it with wooden braces. The plaintiff made a sketch of his plan in a rough way. Witness understood the plan perfectly from description and sketch. In an examination of this witness in this connection on a former occaision, in speaking of the guiding of the platform in its dscent, he may have said that Dubois proposed to use four piles pushing through a projection at the corners of the platform.

David Tyler, a resident of Clearfield County, Penn'a, testified that he had known the plaintiff for thirty years and had conversed with him about his plan for piers of the Susquehana bridge in the month of April, 1861, at Havre de Grace, between 13th and 17th of April. The statement of this witness corresponded substantially with Redding's and the others who preceded him. He stated that he understood the description perfectly well; it seemed to be plain and simple. Plaintiff also spoke to him about getting a contract to construct the bridge over the Susquehanna.

Able Dubois, the brother of the plaintiff, testified as to connection with plaintiff in March & June, 1861, at Havre de Grace. The testimony of this witness was like that of the others in regard to the
57 plaintiff's plan. Plaintiff said he was going to try to get the building of bridge at Havre de Grace.

Charles Whitehead, of Lycoming County, Penn'a, has known Duboise 12 years, and had a conversation with him at Dubois's mill, October, 1861; testified in substance as the witnesses did who preceeded him; and said plaintiff made a diagram in sawdust with a stick, a rough sketch of the construction of a pier, which witness understood.

Cornelius B. Fields recalled in rebuttal: Had a conversation with the plaintiff with regard to the piers of a bridge over the Susquehanna in the summer of 1861, when plaintiff described to witness his plan very fully and in detail. Witness understood the description thoroughly, and would not hesitate to try it had he had money enough.

The plan described by the witness was substantially that described in plaintiff's patent, but more in detail. Plaintiff said as soon as masonry began to sink the pier, would brace it longitudinally and with cross-braces; braces might remain in and be interlocked with the masonry.

Whereupon the plaintiffs, by their counsel, prayed the court to instruct the jury, as follows:

Plaintiff's prayers.

1. The plaintiff prays the court to instruct the jury that the
58 letters-patent to the plaintiff, dated September 23rd, 1862, offered in evidence are—

As to the 1st claim, for building and setting piers by means of a floating coffer-dam, as follows; that is to say, by constructing a strong timber or other suitable character of platform, and bolting thereon one section of a caisson, made of boiler-plate metal or other suitable material, of the form and size of the corresponding part of the proposed pier, the

whole being made water-tight, and then laying the stone or other suitable material for the pier, in the said section of the caisson, out to and against its sides, so that the caisson may closely encase the pier; and when by the weight of the masonry the caisson is sunk to a point, at which its top is as near the surface of the water as may be deemed advisable, adding another section of caisson, and then again laying masonry in the caisson, as above described, until its top again approaches as near to the surface of the water as may be proper, and then adding another section and laying in more masonry; and so on in like manner until the platform sets on the foundation prepared for it; each section when put on being strengthened by strong rods longitudinally and transversely, as may be necessary, the said platform to be guided to its foundation by any suitable means.

And as to the 2nd claim, for the use of the floating coffer-dam or caisson, as above described, to encase permanently and strengthen the pier.

And as to the 3rd claim, first, for guide-piles to guide the sectional floating coffer-dam as described to its foundation; and, second, for said piles to give stability to the pier when down, by sawing them off at such height as to leave a part of each pile to resist any tendency of the pier to horizontal movement.

2. If the jury find from the evidence that the plaintiff, to whom were granted the letters-patent of 23rd September, 1862, was the first and original inventor of the said inventions claimed in said patent, and had with reasonable dillgence pursued his invention until he had perfected the same, and used due diligence in applying for and in pursuing his application for a patent until he obtained the same; and shall also find that the defendant, after the granting of said patent, and before the institution of this suit, did, in the construction of certain bridge-piers in the river Susquehanna, use substantially the said inventions claimed in said patent, or any one or more of them, then the plaintiff is entitled to recover such actual damages as the jury may judge just and reasonable.

3. If the jury find from the evidence, under the preceding instructions of the court, that the plaintiff is entitled to recover, then to aid them in ascertaining the damages actually sustained by him, the jury may consider the state of the art of building piers in deep water at the time of the plaintiff's invention; the utility and advantage of the invention claimed by the plaintiff and used by the defendant (if they shall find such utility and advantage) over other modes or devices for working out similar results; the extent of the use of said invention by the defendant, and the value of such use.

4. If the jury find from the evidence that the plaintiff, in the spring or summer of the year 1861, conceived the idea of the inventions claimed in his patent, and described the same to various persons so clearly and intelligibly that a person skilled in the art could, from such description, have constructed a pier in the mode described; and shall further find that at said time the said inventions had not been used on the piers of the Susquehanna bridge, mentioned in the evidence, nor patented in any foreign country, nor described in "Mahan's Civil Engineering," and had not been described by so clearly and intellegibly that a person skilled in the art could, from such description, have constructed a pier in the mode described, then the plaintiff is the original and first inventor of said inventions.

And the defendants, by their counsel, prayed the court to instruct the jury as follows:

Defendants' prayers.

1. That the patent of the plaintiff, under his first claim, is for a process of building and setting piers by first driving long, temporary piles into the bed of the stream outside of a given space, then prepa-
61 ring a suitable foundation, then making a strong timber or other suitable character of platform, having bolted to its upper side a section of a hollow rectangular or other desirable form of box, to be made of boiler-plate metal or other suitable material, strengthened laterally and longitudinally from sides and ends by means of strong rods, and fitted to slide down over the guide-piles, first driven by cutting vertical holes through the platform; laying the masonry of the pier in this box, adding sections from time to time as the increasing weight of additional masonry required, until the platform and pier, encased by the different sections of the box, rested and became set upon the foundation prepared for it; when the guide-piles are sawed off just above the top of the timber or other platform, so that their stumps, in connection with the weight of the pier, may serve to prevent lateral movement of the platform and pier on the foundation.

That the words "substantially as described," in the specification of the plaintiff's patent, when referring to what is called there "the principal of operation," which he desires to have protected, is the above process, which is also what is referred to by the words "substantially as set forth" in the first claim; and that unless the jury shall find from the evidence that the defendants, in the construction of their bridge across the Susquehannah River, used the process above detailed, as well as the timber or other suitable character of platform, fitted to slide down the guide-piles referred to, by cutting vertical holes through it, and sawing off the stumps of said piles just above the top of the platform, when
62 the pier is completed, as the other parts of the process claimed in the first claim of the plaintiff, then the plaintiff is not entitled to recover for an infringement of his first claim.

2. That the plaintiff's third claim for the guide-piles A A, in combination with a floating coffer-dam, substantially as and for the purpose set forth, is for a combination of the guide-piles referred to, with a floating coffer-dam, consisting of a strong timber or other suitable character of platform, having bolted to its upper side a section of a hollow rectangular or other desirable form of box, to be made of boiler-plate metal or other suitable material, strengthened laterally and longitudinally from sides and ends by means of strong rods, and fitted to slide down over the guide-piles A A by cutting vertical holes through the platform; the stumps of said guide-piles, when sawed off just above the top of the platform, in connection with the weight of the pier, serving to prevent lateral movement of the platform and pier on its foundation; and unless the jury find from the evidence that the defendants, in the construction of their bridge across the Susquehannah River, used guide-piles, over which such a platform as is here described was fitted to slide down through holes cut in the platform, the plaintiff is not entitled to recover for an infringement of his third claim.

3. That the plaintiff is not entitled to recover, if the jury should find the fact of infringement in his favor, for any piers built and settled after the commencement of this action; and where piers were built
63 and settled prior to that date, only for such piers as were built and settled with sectional caissons, as distinguished from entire caissons, and with guide-piles as distinguished from screws, as a mode of building and setting piers in their places.

4. If the jury shall find that the plaintiff is entitled to damages at all, it is only to such actual damages as he may have proved that he has sustained by the use of his invention by the defendants in the construction of their bridge over the Susquehannah, and inasmuch as the plaintiff has offered no evidence to shew the value of iron for encasing and strengthening the piers of bridges, he is entitled to but nominal damages under the second claim of his specification.

5. That the plaintiff, according to the true construction of his second claim, would, if entitled to damages at all, be entitled to damages for the use of iron in encasing and strengthening the piers of the bridge over the Susquehannah, built by the defendants, in the case of those piers only which were built and set in sectional caissons prior to the commencement of this action.

6. That in determining the question of priority between the claims of the respective patents of the plaintiff and George A. Parker, which have been offered in evidence, so far as they conflict, the patent of said Parker, and the fact that it was granted after an interference declared by
64 the Commissioner of Patents between the plaintiff and said Parker, may be considered by the jury in determining which of said parties was the original and first inventor of that which the defendants have used in the construction of the piers of their bridge across the Susquehannah.

7. That in the event of the jury awarding damages to the plaintiff, they are to compare the structure patented by him and built by the defendants, should they find the fact of infringement, with such structures previously known in the science or art of engineering, and which reasonable and competent engineers would have adopted, looking to economy, efficiency, and durability; and that should the jury find that such structures last mentioned, or any of them, would have been cheaper than that adopted, their verdict must be for nominal damages only.

8. If the jury shall find that the plaintiff in the spring of 1861 explained his invention to the witnesses who have testified upon the subject, by verbal statements only, but without reducing the same to practice by making a drawing, model, or written specification thereof; and that, prior to the application of the plaintiff for a patent, George A. Parker, the engineer of the defendants, superintending the construction of their bridge across the Susquehannah, had devised and perfected the plan afterwards pursued for building and setting the piers of said bridge, and was actually engaged in preparing for the work of actual
65 construction, when, as testified by the said Parker, the said plaintiff called on him and heard the said plan described without making any claim thereto, but afterwards applied for and obtained the patent on which [which] the present action is founded, then the plaintiff is not entitled to recover damages in this action as against these defendants.

9. The defendant, by its counsel, prays the court to instruct the jury that, upon the issues joined in this case, the question is open before the jury, whether the plaintiff was or was not the first and original inventor of the improvement described in the patent of the 23rd September, 1862, offered in evidence; and that in considering the said question, the jury may and ought to consider the evidence in the cause in relation to the state of the art of building and setting piers known at the time of the alleged invention of the plaintiff described in said patent.

Whereupon the court, rejecting the prayers of both plaintiff and defendants, gave the following instructions to the jury:

Court's instructions.

1. The first claim in plaintiff's patent is for an improvement in the mode of building piers for bridges in deep water, by the use of a sectional floating coffer-dam, constructed of either boiler-plate metal, wood,
or other material as described in the specification; having for its
66 bottom and being bolted horizontally on to a strong timber
or other suitable character of platform. The said platform and sections of the floating tube, or coffer-dam, being made water-tight at bottom and on the sides, by caulking and pitching, or cementing, and having the several sections of the same strengthened laterally and longitudinally by means of strong rods, and to be sustained by the buoyancy of the water alone. The pier to be built in and close against the said coffer-dam; which is to be added to by sections from time to time, as the weight of the masonry sinks the dam in the water, so as always to keep the upper or open end of the tube above the surface of the water, and built so, that when the pier is finished, the casing or tube may remain to strengthen and protect the piers, or may be removed at the option of the builder.

The second claim of the plaintiff's patent is for the use of the tube or material of which the dam is made, for encasing and strengthening the pier; that is, it shall be so constructed that it can be used for the casing and strengthening the pier, no matter whether it be first placed in position entire, or be built in sections as the masonry progresses.

The third claim of the plaintiff's patent is for a combination of a floating coffer-dam, as claimed in the first claim, with guide-piles, which are driven into the bottom of the river, around the site of the proposed
pier, and reach above the surface of the water, and pass through
67 holes in the platform, and have their tops framed together with
ties; when the pier is building, they are to sustain and keep upright the tube with its pier inside, and to guide it down to its foundation prepared at the bottom of the river; when the pier is finished they are then to be cut off just above the top of the platform, and their stumps left to prevent any lateral movement of the platform and pier on its foundation.

2. In reference to the question, whether the plaintiff is the original and first inventor of the three claims made by him in his said patent, the jury have a right to take into consideration the knowledge which they may find to have been possessed, prior to the date of plaintiff's patent, by the several witnesses whose names are given in the notice of defense in this case, and who have been examined; and also the description of such constructions in "Mahan's Civil Engineering," and the patent of George A. Parker, dated 6th of September, 1864; and also all description of his invention made by plaintiff to any one prior to the date of his said patent, in the year 1861 or '62; and also to the conversation (whatever the jury may find that to have been) between the plaintiff and the engineer of defendants in 1862, prior to the date of plaintiff's application for a patent.

3. That the plaintiff, if entitled to recover in this case, is only entitled
to recover for the piers built and settled between the date of his
68 patent (23rd of September, 1862,) and the institution of this suit,
(the 3rd Nov., 1864,) and then only under his several claims for such piers as they shall find to have been built in accordance with the court's construction of the same.

4. If the jury shall find from the evidence that the piers built by the defendant, between the date of plaintiff's patent and the institution of

this suit, were built with sectional caissons, but were not supported by the buoyancy of the water, and had other contrivances for lowering them on their foundations, then there is no substantial identity between them and the invention claimed in the plaintiff's first claim, and therefore there is no infringement as to that invention.

5. If the jury shall find that the piers mentioned in the last instruction had no combination of a sectional caisson with guide-piles passing through the platform, but were sustained in the course of construction and guided down to their foundations by some other contrivance, there is no infringement of pl't'ff's third claim.

6. If the jury shall find that defendant, in the construction of one or more of the piers supporting their bridge across the Susquehanna River, infringed upon any or all of the inventions described by plaintiff in his patent, as construed by the court in the first, fourth, and fifth instructions; and shall find that the plaintiff was the first and original
69 inventor of the said mode of constructing piers for bridges in deep water, and that said mode was useful, they can, in ascertaining the actual damages plaintiff has sustained by such infringement, take into consideration the state of the art of building piers for bridges in deep water at the time of plaintiff's invention, the utility and advantage of the said mode over the old modes or devices used for working out similar results, and the saving which has accrued to defendant thereby.

7. But if the jury shall find for the plaintiff only for an infringement of his second claim—that is, for permanently encasing the pier with the boiler-plate metal caisson—their verdict must be for nominal damages only, as the plaintiff has not shown by his evidence the value of the said invention as separate and distinct from the value of the whole improvement.

Wherefore the defendants, by their counsel, prayed leave to except to the rejection of their prayers, and also to the granting of the instructions given by the court, and that the court would sign and seal this their bill of exceptions; which is accordingly done this 29th day of November, 1867.

WILLIAM F. GILES. [SEAL.]

And now here at this day, to wit, the seventh day of December, in the year of our Lord 1867, the said The Philadelphia, Wilmington
70 and Baltimore Railroad Company produced to the said circuit court here the writ of the United States of America for the correcting of errors of and upon the premises, commanding the record and proceedings of the judgment aforesaid, so as aforesaid rendered, with all things concerning the same, to be transmitted to the Supreme Court of the United States, to be held at the city of Washington on the first Monday in December next; which said writ of error is in the words and of the tenor following, to wit:

71 THE UNITED STATES OF AMERICA, *ss:*

[SEAL.] The President of the United States to the judges of the circuit court in and for the Maryland district, greeting:

Because in the record and proceedings, as well as in the rendition of the judgment of a plea which is in the said court, before you or some of you, between John Dubois, plaintiff, and the Philadelphia, Wilmington and Baltimore Railroad Company, defendants, a manifest error

hath happened to the great damage of the said Philadelphia, Wilmington and Baltimore Railroad Company, as by its complaint appears; we, being willing that error, if any hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, do command you, if judgment be therein given, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the first Monday of December next, in the said Supreme Court to be then and there held, that, the record and proceedings aforesaid being inspected, the said Supreme Court may cause further to be done therein to correct that error what of right and according to the laws and customs of the United States should be done.

72 Witness the Honorable Salmon P. Chase, Chief Justice of our Supreme Court, the first Monday in December, in the year of our Lord one thousand eight hundred and sixty-seven.

Issued the 7th day of December, 1867.

JAMES W. CHEW,
Clerk Circuit Court.

73 The United States of America to John Dubois, greeting:,

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be held at the city of Washington on the first Monday in December next, pursuant to a writ of error filed in the clerk's office of the circuit court of the United States for the fourth circuit in and for the Maryland district, wherein the Philadelphia, Wilmington and Baltimore Railroad Company is plaintiff in error and you are defendant in error, to shew cause, if any there be, why the judgment rendered against the said Philadelphia, Wilmington and Baltimore Railroad Company in the said writ of error mentioned should not be corrected, and why speedy justice should not be done to the parties in this behalf.

Witness my hand and seal this seventh day of December, in the year of our Lord one thousand eight hundred and sixty-seven.

WILLIAM F. GILES. [SEAL.]

I acknowledge service of the above citation.

L. M. REYNOLDS,
74 *Att'y for Dubois.*

75 In pursuance whereof, and according to the form and effect of the act of Congress in such case made and provided, the transcript of the record and proceedings of the judgment aforesaid, so as aforesaid rendered, with all things relating to the same, together with the said writ of error, are hereby transmitted to the said Supreme Court accordingly.

Writ of error bond.

Know all men by these presents that we, Thomas Donaldson and Enoch Pratt, of the district of Maryland, are held and firmly bound unto John Dubois in the just and full sum of twenty thousand dollars, lawful money, to be paid to the said John Dubois, his heirs, executors, administrators, or assigns; to the payment whereof, well and truly to be made and done, we bind ourselves, our heirs, executors and administrators, jointly and severally, by these presents, sealed with our seals,

and dated this seventh day of December, in the year of our Lord one thousand eight hundred and sixty-seven.

Whereas the said John Dubois did obtain a judgment against the Philadelphia, Wilmington & Baltimore Railroad Company in the circuit court of the United States for the fourth circuit in and for the Maryland district, at the November term thereof, in the year of our Lord one thousand eight hundred and sixty-seven, for the sum of ten thousand dollars, from which judgment the said The Philadelphia, Wilmington and Baltimore Railroad Company have sued out a writ of
76 error returnable to the next term of the Supreme Court of the United States:

Now, the condition of the above obligation is such, that if the said defendants shall not cause a transcript of the record and proceedings of the said circuit court to be transmitted to the said Supreme Court within the time appointed by law, and prosecute the said writ of error with effect, and also satisfy and pay to the said John Dubois, his heirs, executors, administrators, or assigns, in case the said judgment shall be affirmed, the damages adjudged in the circuit court aforesaid, as also the damages that may be awarded in the said Supreme Court, then the said bond to be and remain in full force and virtue; otherwise of no effect.

ENOCH PRATT. [SEAL.]
TH. DONALDSON. [SEAL]

Signed, sealed, and delivered in the presence of—
JOHN H. LOWE.

Bond approved 7 Dec., 1867.

WILLIAM F. GILES.

77 In testimony that the aforegoing is a true copy, taken from the record and proceedings of the circuit court aforesaid, I hereunto subscribe my name and affix the seal of the said circuit court, this 23d day of October, in the year of our Lord one thousand eight hundred and sixty-nine.

[SEAL.] JAMES W. CHEW,
Clerk Circuit Court.

78 [Vignette.]

The U. States Patent Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters-patent granted George A. Parker, dated 6th September, 1864, No. 44111.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this third day of October, in the year of our Lord one thousand eight hundred and sixty-seven, and of the independence of the United States the ninety-second.

[SEAL.] T. C. THEAKER.

79 The United States of America to all to whom these letters-patent shall come:

Whereas George A. Parker, of Lancaster, Massachusetts, has alleged that he has invented a new and useful improvement in subaqueous structures, which he states has not been known or used before his appli-

cation; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are therefore to grant, according to law, to the said George A. Parker, his heirs, administrators, or assigns, for the term of seventeen years from the sixth day of September, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said George A. Parker in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this sixth day of September, in the year of our Lord one thousand eight hundred and sixty-four, and of the independence of the United States of America the eighty-ninth.

[L. S.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

80 *The schedule referred to in these letters-patent and making part of the same.*

To all whom it may concern:

Be it known that I, George A. Parker, of the town of Lancaster, in the county of Worcester, and State of Massachusetts, have invented a new and improved mode or process of forming, founding, and erecting subaqueous structures, and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a side elevation of a pier in process of construction.

Figure 2 is a transverse section of the same elevation.

Figure 3 is a side elevation of a finished pier.

Figure 4 is an end elevation of a finished pier.

Figure 5 is a plan of a finished pier with the coping removed.

Similar letters in the several figures indicate corresponding parts.

To enable others skilled in the art to perform with my invention, I will describe its construction and mode of operation. In the accom-
81 panying drawings A represents a prepared pile foundation; B, B′, B″, B‴, represent the several courses of a timber platform; C, C′, C″, C‴, represent the several sections of the caisson; D represents the coping course of stone; E represents the stone-work; F represents the framing and guide-piles used in construction; H represents the gearing for lowering; K represents the screws for lowering and guiding.

The preparation of the foundation or surface upon which the subaqueous structure is designed to rest, and the manner of building and arranging the framing and guide-piles depend on the character of the bed of the stream, or body of water, whether mud, sand, gravel,

rock, or other substance, and involve questions of engineering science which must be determined and the foundation be prepared before my process or method shall become operative.

When that foundation is ready, and the framing and guide-piles are completed and put in place, the platform B B′ B″ B‴ is floated in between the guide-piles F.

The lowering apparatus, either male and female screws, or chains, or their equivalents, are put in place and connected by shafts and bevel wheels, or their equivalents, or, if expedient, the screws may be turned separately by hand-power, by means of a wrench or otherwise, care being taken to secure a uniform number of revolutions of all the
82 screws so as to keep the platform in a horizontal position. The number of screws or chains to be used must be determined by the weight intended to be imposed on each. If chains be used, one end of each should be fastened to the platform B B′ B″ B‴ at suitable points, and the rest of the chain should be wound on a drum, or its equivalent, connected with the shafting. If screws be used, they should be put in place and fixed, being made to turn in a nut on the underside of the platform B B′ B″ B‴; in this respect differing from the usual practice, which consists in fastening the lower end of the screw to the platform, whereby nearly the whole length of the screw projects above the work at its commencement and enhances the difficulty of construction. .

Upon the platform B B′ B″ B‴ should be placed and firmly secured by bolts or otherwise a section C of a water-tight caisson, made of metal or other suitable material, of the requisite thickness, height, and form, and having a bottom of similar material to the sides or other suitable substance. Within this section of the caisson should be laid stone of the requisite class of masonry, the quantity of which must be determined by the weight to be imposed on the screws or chains. When the proper quantity of stone shall have been thus laid this section of the
83 caisson should be lowered to such a depth that its top shall be as near the surface of the water as may be safe or expedient, when another section C′ should be placed on the first and the joint between the two sections may be made water-tight. In this second section of the caisson the stone should be laid as before described and the section lowered in the same manner as the first.

Additional sections of the caisson should be similarly used if required by the depth of the water, and the same process repeated until the pier or fabric rests upon its proper foundation and reaches to the desired height or elevation above the bed of the stream or body of water.

What I claim as my invention, and desire to secure by letters-patent, is—

The building and setting of stone piers for bridges and other structures, by means of a suspended sectional iron caisson, substantially in the manner herein described.

I also claim the use of the caisson, which constitutes the coffer-dam, for permanently enclosing and strengthening the pier substantially as described.

I also claim in combination with an iron caisson in which a pier is built and lowered to its foundation, and which caisson forms a permanent iron casing to the pier, a timber platform B united thereto in the manner substantially and for the purpose described.

GEO. A. PARKER.

Witnesses:

F. E. FELTON,

J. S. ATKINSON, Jr.

R. H. W.

(Here follow 3 maps, marked page 83.)

84 [Vignette.]

The U. States Patent Office to all persons to whom these presents shall come, greeting:

This is to certify that the annexed is a true copy from the records of this office of the [office of the] letters-patent granted John Dubois, dated 23 September, 1862, No. 36512.

In testimony whereof I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this fourth day of October, in the year of our Lord one thousand eight hundred and sixty-seven, and of the independence of the United States the ninety-second.

[SEAL.] T. C. THEAKER.

85 The United States of America to all to whom these letters-patent shall come:

Whereas John Dubois, of Williamsport, Pennsylvania, has alleged that he has invented a new and useful improvement in mode of building piers for bridges, &c., which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are therefore to grant, according to law, to the said John Dubois, his heirs, administrators, or assigns, for the term of seventeen years from the twenty-third day of September, one thousand eight hundred and sixty-two, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said John Dubois, in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this twenty-third day of September, in the year of our Lord one thousand eight hundred and sixty-two, and of the independence of the United States of America the eighty-seventh.

[L. S.] CALEB B. SMITH,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

D. P. HOLLOWAY,
Commissioner of Patents.

86 *The schedule referred to in these letters-patent and making part of the same.*

To all whom it may concern:

Be it known that I, John Dubois, of Williamsport, in the county of Lycoming, and State of Pennsylvania, have invented a new and useful improvement in building piers for bridges and other structures, and

setting the same, and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings forming part of this specification, in which—

Fig. 1 is a sectional view illustrating a pier partly built.

Fig. 2, a similar view illustrating a pier in a further stage of progress.

Fig. 3 is also a similar section showing a pier set and nearly completed according to my invention.

Fig. 4 is a horizontal section showing the means which are employed in the building and setting of piers according to my invention.

87 Fig. 5 is a plan of one section of the water-tight casing, within which the stone work is laid.

Similar letters of reference in the several figures indicate corresponding parts.

In the building and setting of piers for bridges and other structures in beds of rivers or streams, it has been found necessary, in most instances, to erect stationary coffer-dams at the points where the piers are to be located. This operation requires a water-tight chamber to be constructed up from the bed of the river, and then emptied of its water by a pumping process, before the building of the pier can be proceeded with. The expense and inconvenience of this operation, as well as that of all other modes of building and setting piers in rivers, greatly enhances the cost of building bridges.

With my invention much of the inconvenience and expense thus incurred will be obviated and a much firmer structure obtained.

To enable others skilled in the art to perform with my invention, I will proceed to describe its construction and operation:

To construct piers for a bridge across a river or stream from a solid foundation, by first driving long temporary piles A A into the bed of the stream, outside of a given space. These piles are left extending up above the surface of the water, as represented. Then either drive

88 down between and near about the long piles A A other short piles C C or firmly embed rock or other substantial material into the earth or river bed, as represented at D, and, if desirable, slip down over the piles A A one or more broad and heavy stones or timbers C^1, and embed the same firmly into the soil, so that they rest down upon the foundation, and form a flat surface. Next construct a strong timber or other suitable character of platform E, and bolt to its upper side one section of a hollow rectangular or other desirable form of box or tube F, F^1, F^2, F^3, F^4, which is used to encase and strengthen the pier; the said tube being composed of boiler-plate metal, or other suitable material, and its lower section F having a bolting flange *a* on its lower edge, running inward at right angles to its sides, so as to bolt horizontally to the platform E, as represented. This platform and section of the tube are caulked and pitched, or cemented, so as to be water-tight at bottom and on all sides, except at top, where it is fully open as shown. The first and several other sections of the tube should be strengthend laterally and longitudinally from sides and ends by means of strong rods *b b*, as represented.

The structure E F should now be filled to slide down over the

89 sustaining and guide piles A A by cutting vertical holes *c*, corresponding with the shape of the piles, through the platform E. The structure, when thus fitted to the piles and let down to the surface of the water, floats by reason of its buoyancy. The upper ends of the piles are now framed together with ties *d d*, so as to stand firm. The preparatory steps for building and setting the pier having thus been consummated, and additional sections, F^1, F^2, F^3, F^4, provided so as to be

brought into use as required, the stone-mason commences to lay the solid pier within the floating coffer-dam, using for the purpose common stone, or other material deemed suitable, as shown in Fig. 1 at G. As soon as a sufficient heighth of mason-work has been set in the section F to cause the structure E & F to descend nearly level with the surface of the water, another section F^1 is bolted, or otherwise firmly fastened upon the top edge of section F, so as to give the proper buoyancy and safety for continuing the work, as illustrated in Fig. 1. This done, the mason proceeds further with his work & builds up the pier until it again becomes necessary to increase the buoyancy, when, as illustrated in Fig. 2, he bolts on other sections, F^2, F^3, F^4, of boiler tubing, as shown in Fig. 2, and proceeds with the building of the pier until the platform E and pier G rests down & becomes "set" upon the foundation, as shown in Fig. 3. He now finishes the pier above the water without using any more sections of tubing, and may, if he deems best, use fine-cut stone, or other finished material, or he may, if desirable, continue the tubing to the top of the pier, so as to obtain additional strength.

When the pier is completed, the piles A A are sawed off just above the top of the platform E, and their stumps, in connection with the weight of the pier, serve to prevent lateral movement of the platform and pier on its foundation.

A metal sectional boiler-plate tube has been described as the casing for the pier, because such tube possesses great strength at small expense, and will serve to bind and support the masonry of the pier. It however is obvious that a floating water-tight coffer-dam, operating on the principle described, might be made of wood, or other material than boiler-plate metal, and when the pier is finished, the floating coffer-dam may be removed from around it, leaving the pier wholly uncovered from base to top. The removed structure may be used in erecting other piers, if desirable.

I have given a minute description of means for carrying out my invention, but I do not wish be confined to those means, but desire to be protected in the principle of operation embodied in a floating coffer-dam, substantially as described for building and setting piers for bridges and other structures.

Having described one mode of carrying out my invention, what I claim and desire to secure by letters-patent is—

1st. Building and setting piers by means of a floating coffer-dam, substantially as set forth.

2nd. The use of the tube which constitutes the dam for encasing and strengthening the pier, substantially as set forth.

3rd. The guide-piles A A in combination with a floating coffer-dam, substantially as & for the purpose set forth.

Witness my hand and seal in the matter of my application for letters-patent on improved mode of building and setting piers for bridges & other structures.

JOHN DUBOIS.

Witnesses:
ROB'T W. FENWICK.
DE WITT C. LAURENCE.

(Here follows map, marked page 91.)

(Indorsement on cover:) No. 288. The Philadelphia, Wilmington and Baltimore Railroad Company, plaintiffs in error, vs. John Dubois. Maryland C. C. U. S.

IN THE

Supreme Court of the United States,

THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAIL ROAD COMPANY,

PLAINTIFF IN ERROR,

vs.

JOHN DUBOIS, DEFENDANT IN ERROR.

In Error to the Circuit Court for the District of Maryland.

IN THE

SUPREME COURT OF THE UNITED STATES.

THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAIL ROAD COMPANY, Plaintiff in Error,

vs.

JOHN DUBOIS, Defendant in Error.

In Error to the Circuit Court for the District of Maryland.

STATEMENT AND POINTS OF THE DEFENDANT IN ERROR.

The statement of facts as it appears upon the first page of the paper book of the plaintiff in error, is substantially correct; but if the allegation that "the evidence on the part of the defendant below tended strongly to shew, that Dubois fraudulently obtained his patent for what was, in fact, the invention of Mr George A Parker, the engineer of the defendent," is of any consequence in the decision of the questions presented upon this record, we reply, that the evidence, as a whole, led to an irrisistable conclusion, that Mr. Parker had endeavored for a long time to devise means to construct the piers of defendant's bridge at Havre De Grace, but failed in his efforts, until Mr. C. B. Crossman communicated to Mr. Parker that which had been told him by Dubois, in confidence, concerning his invention.

Upon the argument of this case, defendant in error will maintain that it was competent for Mr. Dubois to claim and to obtain a patent for a combination, and also for such of the elemental parts of the combination as were new and useful. In support of this principle, we will refer to the following reported cases and elementary trea-

tises: Curtis' Law of Patents, (3d edition), Sections 110, 249, 332; Wyeth v. Stone, 1 Story 273, 287; Hogg v. Emerson, 6 Howard 437; S. C., 11 Howard 587; Moody v. Fiske, 2 Mason 117; Pitts v. Whitman, 2 Story 189; Parker v. Haworth, 4 McLean 370.

We shall, moreover, maintain that the proper construction of the patent to Dubois, is that given to it by the Court below in their instruction to the jury, and that it is not for a *process* for building and setting piers, as contended for by defendant, but for certain devices, or aparatus, to be used in building or setting piers; that it is for a platform and water tight tube or caisson attached thereto, as described, as an improvement upon the coffer-dams formerly used for such purposes; for the use of the tube as a protection to the pier after it has been erected, and for a combination of the coffer-dam with guide piles, as described, for the purpose of guiding and directing the pier to its foundation at the bottom of the river, and staying it against lateral motion by means of the guide piles to be cut off above the platform. There is nothing in the description of the invention, the specifications of the three several and distinct items of claim, or in the patent itself, that can support the theory of defendant's counsel, that the patent granted is for a process, a mode, or a method of building and setting piers, constituting an entirity, a combined use of the different parts to accomplish a purpose. On the contrary, we contend that the patent is for the structures, aparatus or devices, described in the specifications, and *which are to be used in* the process of building and setting piers. In other words, it is for the devices employed, by whatever name they should be called, and not for the process in which they are used. We do not presume to controvert the principle invoked by the defendant, which has been established and reiterated in numerous reported cases, that a patent which claims mechanical powers or things in combination is not infringed by using less than the whole combination, but we contend that it has no application whatever to the case in hand further than as relates to the alleged infringment of the third claim mentioned in the specifications. The claim of invention in this case is not only for a combination, but for the several parts of that combination, and the allegation of the plaintiff is that of the infringement of each of the claims covered by the patent.

The construction of the specification and of the patent belongs to the Court, and as patents for inventions are not to be regarded as monopolies, but privileges for the encouragement of the arts, they should receive a fair and reasonable, if not a liberal construction. Where, as in this case, the inventor claims not only a combination, but any or all of the distinct parts of that combination, he must, necessarily, in order to conform to the requirements of law, describe not only the mode of constructing and operating the different parts, but also the mode of using the whole in combination. It is apparent that in describing his invention in such case, the use of terms applicable to the combination is unavoidable, even in describing the different parts, unless he uses unnecessary repetitions. The plaintiff, in this case, having endeavored to give a description of his invention with unnecessary repetition or verbiage, has made use of expressions which the ingenuity of counsel has endeavored to torture into the manifestation of an intent to claim only a combination, but it is obvious that such expressions occur by reason of a want of the observance of due method in framing the specification, and mingling promiscuously the description of the different parts with the description of the entire combination. It cannot be overlooked that he intended to claim the coffer-dam as being new and a distinct subject of claim, by whatever means it may be guided in its descent to the bottom of the stream, and that he also claims as new the tube as a protection to the pier, and the combination of the coffer-dam and guide piles for constructing the pier, guiding it in its descent, and staying it from lateral motion after it has settled upon its foundation.

The plaintiff, after describing *one mode* of carrying out his invention, proceeds to specify his several claims for letters patent, thus:

1st. Building and setting piers by means of a floating coffer-dam, substantially as set forth, and thereupon the defendant's counsel argue, that the words "substantially as set forth" refer to the preceding description, and include the entire means used as described for *building and setting* a pier. We contend that they mean the employment of a coffer-dam substantially like that set forth in the building and setting of piers. A pier, to serve its purpose, must not only be built, but it must be set upon its foundation, and both

these terms are applicable to the use of the coffer-dam without reference to the guide piles. The *building* consists in laying the masonry composing the pier within a water-tight tube or caisson sustained and buoyed up by the water, the *setting* in the gradual descent of the tube until it reaches its foundation. To have used only the word *building* would have fallen short of describing the full purpose of the coffer-dam, inasmuch as a part of its object is *to set* the pier by a gradual descent to the bottom. There is, therefore, no force in the suggestion that this claim is for *building and setting* piers, so far as it is used in support of the theory that plaintiff's claim is for an entire combination or process. The coffer-dam is a new invention, and may be used in building and setting piers, although some other mode of guiding its descent may be employed than that described in plaintiff's patent. That the plaintiff did not use the words "substantially as set forth" in the sense ascribed to them in the argument, is evident from the fact that the third claim is for a combination of the coffer-dam and guide piles, which, according to defendant's interpretation of these superadded words, would amount to no more than a repetition of the first claim.

Manifestly, the plaintiff intended to claim more than a combination, and an examination of the description and specification of claim reveals nothing inconsistent with this theory, and the defendant has therefore no reason to complain of the construction placed upon the patent by the court below. The cases cited by the defendant's counsel are such wherein the patentee made distinct claim for a combination and nothing else, and the question was whether there had been an infringement of the combination.

The defendant complains that the court, in construing the first claim in the patent, omitted the words "and setting," confining the claim to the building alone. This omission is of no consequence when we consider that all the piers claimed for were set, and, therefore, if they were built by the use of the coffer-dam patented to the plaintiff, the argument that the jury were left to infer that the mere building was an infringement if set by any means whatever, or even if never set, becomes a mere abstraction, when we consider the instruction given to the jury in the fourth paragraph of the charge.

The defendant alleges that the court erred in not limiting the plaintiff's claim to a coffer-dam built in sections. Such a construc-

tion of the patent would be too narrow, and would deprive the plaintiff in many cases of the fruits of his invention. The general design is to construct a water-tight tube or caisson, of such height in the first instance as to serve the purpose of building the masonry with reasonable convenience, and other sections are to be added only when the depth of the water renders such addition necessary to the completion of the pier. The claim is for building and setting piers by means of a coffer-dam, substantially as described, and the description of the mode of constructing piers by such means is thus given: "Next construct a strong timber or other suitable character of platform E, and bolt to its upper side *one section* of a hollow rectangular or other desirable form of box or tube;" "the preparatory steps for building and setting the pier having thus been consumated, and additional sections F, &c., provided so as to be brought into use *as required*," &c.; "*as soon as* a sufficient height of mason-work has been set in the section F to cause the structure E and F to descend *nearly level with the surface of the water*, another section F' is bolted or otherwise firmly fastened upon the top edge of section F, so as to give the proper buoyancy and safety for continuing the work, as illustrated in Fig. 1. This done, the mason proceeds further with his work, and builds up the pier until it *again becomes necessary* to increase the buoyancy, when, as illustrated in Fig. 2, he bolts on other sections," &c. Thus it appears that at first a single section of the tube is bolted to the platform, and other sections are to be added only as they become necessary by the depth of the water, and therefore the use of a single section would be an infringement of the patent. The patentee has left it entirely to the option of the person using his patent to determine when additional sections may be required.

The Court was clearly right in declining to give the instruction prayed for by the defendant's counsel in the fifth prayer for instructions.

But is this complaint well founded in point of fact? The Court throughout their charge, with the exception of that part relating to the construction of the second clause, speak of sectional caissons, and as the jury were instructed that only nominal damages could be recovered for any infringement of this claim the defendants are not injured by the instruction even if it were erroneous.

The defendant in its fifth prayer for instructions requests the Court to limit the plaintiff in his claim for infringement of the second claim in his specification to the use of iron in encasing and strenthening the piers, and to such piers only as are built and set in sectional caissons, and the allegation in the argument is that none other are described in the specifications.

What has already been said will suffice as an answer to the allegation that the plaintiff limits his claim to a sectional caisson, and as to the assertion that the specification describes only *iron* sectional caissons it is enough that we quote the precise language of the specification,—"the said tube being composed of boiler-plate metal, *or other suitable material.*"

The fourth instruction of the Court, which defendant alleges to be erroneous, is in accordance with plaintiff's theory of construction, viz: that the first claim of the patentee is for building and setting piers by means of a coffer-dam, to be supported by the buoyancy of the water, and the jury were instructed that if they were not so supported there could be no infringement. Surely this direction is as favorable to the defendant as it could ask, inasmuch as it left the jury to find, if they could, that the coffer-dam was supported in some other way, and thus gave the defendant the benefit of an attempt to evade the patent by the use of screws, as an alleged means of regulating the descent of the pier.

The fifth instruction is fully in accordance with the settled principles of law in the cases already referred to, in relation to the infringement of a patent for a combination. If, in the mode of construction used by the defendant, there was no combination of the coffer-dam and guide piles passing through the platform, there was no infringement of the third claim.

The counsel for defendant in error will respectfully maintain in the argument:

1. That the patent granted to plaintiff is for three distinct things, viz: a coffer-dam, such as described, for building and setting piers; the tube, constituting the coffer-dam, for encasing the pier; and the coffer-dam in combination with the guide piles. That each of these constitute a distinct claim, and is susceptible of a separate infringement.

2. That the first claim is not for a *process*, but for the use of certain *specified* aparatus in the building and setting of piers, which may be infringed without the use of certain other elements, which, in combination therewith, are made the subject of the third claim. In support of this proposition, we refer to Corning v. Burden, 15 Howard 252. In the opinion delivered in this case it is said, "one may discover a new and useful improvement in the process of tanning, dyeing, &c., irrespective of any form of machinery or device, and another may invent a labor-saving machine, by which this operation or process may be performed, and *each may be entitled to his patent.*"

3. That the tube or caisson, which with the platform constitutes the coffer-dam, is not necessarily to be built in sections, but may consist of one entire tube, and that after one section has been bolted or fastened to the platform, in the manner described in the specification, other sections are to be added only as the same may be required by the depth of the water in which the pier is to be set.

4. That the tube for encasing and strengthening the pier, mentioned and described in the second claim is not necessarily a *sectional* caisson, but is the same tube or caisson used as part of the coffer-dam, and may be either entire or in sections, as the depth of the water may require the same to be constructed in building the pier.

The defendant alleges that the Court erred in declining to answer its eighth prayer for instruction, and that there was evidence from which the jury might have found that plaintiff was estopped by his silence in reference to his claim of invention at the time of his conversation with Mr. Parker.

This conversation occurred in May or June, 1862, according to the testimony of both parties. Mr. Parker testifies (p. 15) that at that time "the work was well got on with, and estimates had been received from Harlan & Hollingsworth in regard to the cost of the iron in the piers." Cornelius P. Fields testifies (p. 9) that the bridge was commenced in the fall of 1862, but the precise time when the work was commenced is not stated by any of the witnesses. Mr. Parker testifies (p. 15) that after the first conversation the plaintiff, in a subsequent conversation, said to him, "I understand you

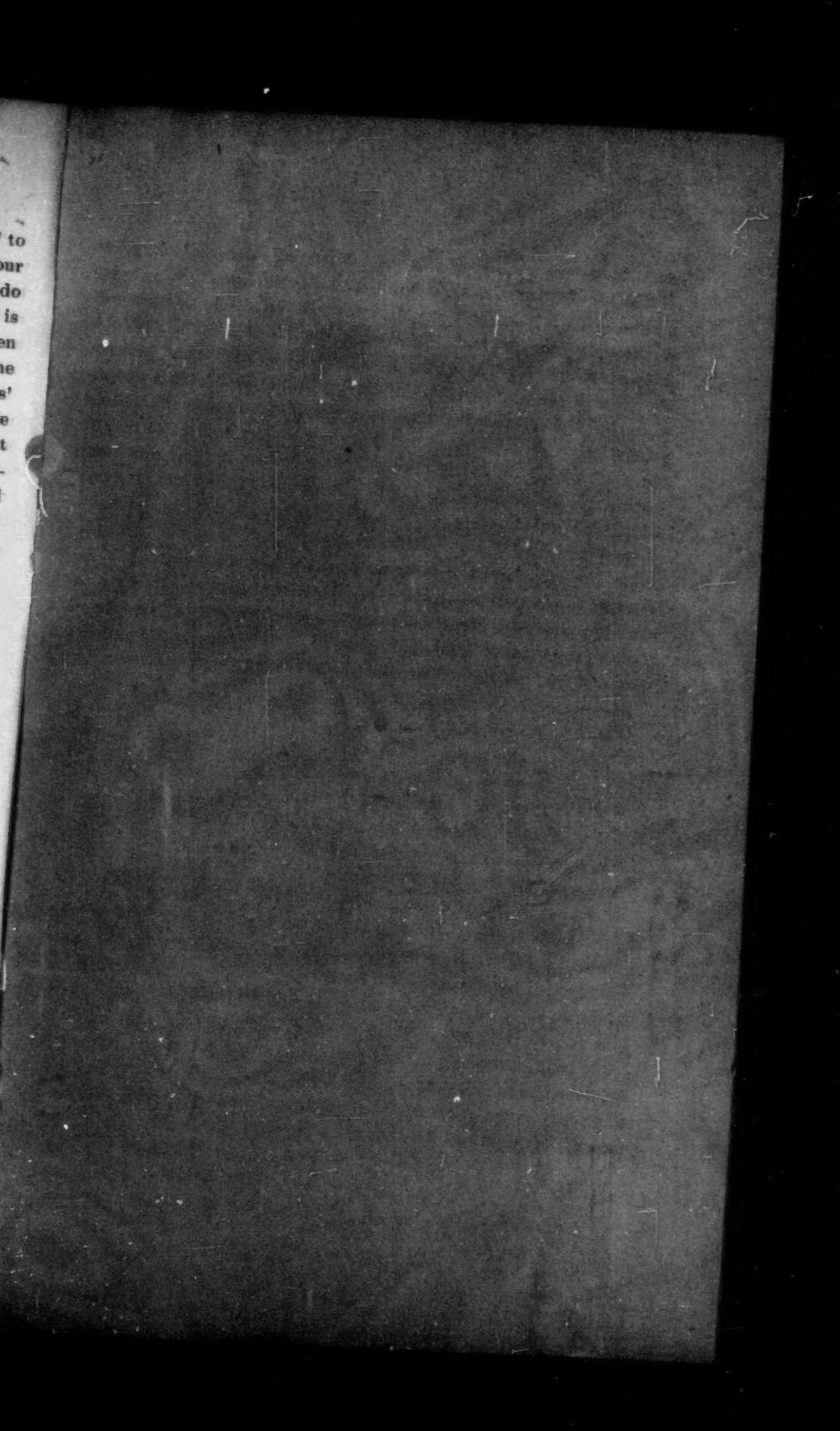
claim to be the inventor if this way of putting down the piers;" to which Mr. Parker replied, "Don't speak to me again during your natural life. If you have any business with me or the company do it through your lawyer. This was in the fall of 1862." There is not a spark of evidence in the case tending to shew that between the time of the conversation, in May or June, 1862, and the time when Mr. Parker and the defendant were fully notified of Dubois' patent, any work had been done, or any money expended by the company. Defendant will maintain, in reference to this point, that Dubois was under no obligation to disclose to Mr. Parker his invention, and that, therefore, no estoppel can result from his alleged silence; and that if even under certain circumstances silence would estop him, the case, as presented, lacks one essential element of an estoppel *in pais*, in that there is no evidence that anything of value was expended by Mr. Parker or the defendant in ignorance of Dubois' right; that defendant was not influenced to act by the silence of Dubois. On this point the following cases are cited:

Commonwealth v. Moltz, 10 Barr 530.
Wallis v. Truesdell, 6 Pich 455.
Whitney v. Holmes, 15 Mass 152.
Miller v. Cresson, 5 Watts & Seig. 284.
Welland Canal v. Hathaway, 8 Wend. 480.
Hill v. Epley, 7 Casey 334.
Reaun v. Hamish, 9 Wright 379.
Millinger v. Sorg, 5 P. F. Smith 225.
Chapman v. Chapman, 9 P. F. Smith 214.

The facts necessary to establish an estoppel *in pais* must appear affirmatively, and, therefore, there being no evidence in the case shewing that defendant or Mr. Parker was misled to their hurt, there can be no estoppel, even assuming the fact of Dubois' silence; Com. v. Moltz, 10 Barr 530; Hill v. Epley, 7 Casey 334.

We shall, moreover, maintain that there was no error in confining the evidence in relation to the state of the art of building and setting piers to the question of the amount of damages to be recovered for any infringement that might be proven.

WM. H. ARMSTRONG,
SAMUEL LINN,
For Defendent in Error.



IN THE

Supreme Court of the United States.

THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAIL ROAD COMPANY,
PLAINTIFF IN ERROR,

vs.

JOHN DUBOIS, DEFENDANT IN ERROR.

In Error to the Circuit Court for the District of Maryland.

IN THE

Supreme Court of the United States.

THE PHILADELPHIA, WILMINGTON AND BALTIMORE RAIL ROAD COMPANY,

PLAINTIFF IN ERROR,

vs.

JOHN DUBOIS, DEFENDANT IN ERROR.

In Error to the Circuit Court for the District of Maryland.

STATEMENT AND POINTS OF PLAINTIFF IN ERROR.

THE Defendant in Error was Plaintiff in the Court below. He claimed damages, for alleged infringements of a patent right, granted to him, by letters patent, dated 23d September, 1862, for an alleged "new and useful improvement in the mode of building piers for bridges." The letters patent and specification are in the Record, at page 35.

The Defendant pleaded three pleas: 1st—The general issue; 2d—That the letters were obtained by fraud and imposition; 3d—That the patentee was not the first and original inventor. These pleas were followed by a notice of prior use, with a list of witnesses, &c. Issue was joined upon the first plea, and upon replications to the 2d and 3d pleas. A verdict was rendered, in favor of the Plaintiff, for $10,000, and judgment rendered thereon.

In the course of the trial, a good deal of evidence was given of a conflicting character; and the evidence, on the part of the Defendant below, tended strongly to show, that Dubois fraudulently obtained his patent for what was, in fact, the invention of

Mr. George A. Parker, the engineer of the Defendant, by whom the bridge was designed and built.—Pages 14 to 16. After the testimony had been closed, the Plaintiff submitted four prayers, (Record, 25 and 26,) and the Defendant nine prayers, (Record, 27 and 28,) all of which were rejected by the Court; and the Court gave to the jury seven instructions, (Record, 29 and 30,) and Defendant below excepted to the refusal of the Court to grant its several prayers; and to the several instructions, respectively, given by the Court to the jury.

Upon examination of the patent of Plaintiff below, (page 37,) it will be seen, that he sums up his claim, under three heads, the first of which (page 37) is in these words: "Building and setting piers, by means of a floating coffer-dam, substantially as set forth."

The construction of this claim, by the Counsel of the Plaintiff, is shown in their first prayer. They interpret it to be a claim, for a sectional caisson, fastened to a platform, constituting a water-tight coffer-dam, sustained by the buoyancy of the water, in which the pier is gradually built, as described in said prayer; and to be guided to its foundation by any suitable means.

The views of the Counsel for the Defendant in relation to this first claim are embodied in the Defendant's first prayer. They construed the first claim, as a claim for a process for building and setting piers. They considered the claim as a claim for a combination of several co-operating constituent parts, producing a specified result; of which combination the guide piles, the vertical holes in the platform, and the stumps of the guide piles, are made essential component parts.

The Court, in the first instruction given, interprets the first claim of the Plaintiff, as being a claim for *building* piers. It rejects the idea of a process for building and setting piers. It rejects the notion of a combination with guide piles and vertical holes in the platform, or either of them. It strikes out the words "and setting" from the first claim; and decides, that the mere *building* a pier in a coffer-dam, made up of sectional caissons, whether set *by any means*, and even if *never* set, would be an infringement of the first claim of the patent.

The second claim of the patentee, in his summing up, is in these words: "The use of the *tube*, which constitutes the dam for encasing and strengthening the pier, substantially as set forth."

The Plaintiff, in the second branch of his first prayer, by using the words "*as above described*," in connection with the floating

coffer-dam or caisson, seems to have intended to limit this claim to a *sectional* coffer dam, as contradistinguished from an entire tube.

The Defendant, in its fifth prayer, construed this second claim, as extending, only, to *iron* sectional caissons; no other being described in the specification; and the claim being limited by the words "substantially as set forth." But the Court, in its first instruction, construed this second claim, as extending to the *tube*, or material, of which dam is made, whether made of iron, or other material, and whether made in sections, as the masonry progresses, or made *complete*, before any masonry is built in.

The patentee's third claim is for "the guide piles in combination with a floating coffer-dam, substantially as, and for the purpose, set forth."

The only particular, in which the Court, in its first instruction, as to this third claim, is supposed to have erred, is in this: namely, in making the combination claimed to extend to *any* coffer-dam, whether constructed of caissons in sections, or an entire tube; nor is the error removed by the Court's fifth instruction, as that refers to *the guide-piles*, not to the coffer-dam, or its construction.

A question arose, as to the effect of the evidence relating to the state of the art of building and setting piers, known at the time of the alleged invention of the Plaintiff, as to which George A. Parker (page 15) and Edward S. Renwick (page 17) had given testimony. The Plaintiff's 4th prayer (26) and the Defendant's 9th prayer, (page 28) show the opposing theories of the parties. The Court's second instruction excludes from the consideration of the Jury all evidence in relation to the state of the art, except as to what was possessed prior to the date of the Plaintiff's patent, by such of the several witnesses, named in the notice, as were examined on the trial, and as described in "Mahan's Civil Engineering," and in the patent of George A. Parker.

The Court's third instruction, in the concluding part thereof, ignores the idea of *a process* for building and setting piers. It considers each several claim as a several and independent right of the plaintiff; and that an infringement of any one of these claims, so construed by the Court, gave to the Plaintiff a right to recover.

The fourth instruction of the Court made an essential element of the hypothesis that there was no infringement, that the piers of the bridge, as built by Defendant, were built in sectional caissons, but were *not* supported by the buoyancy of the water. Now all the evidence showed, that to some extent *all* the piers,

in their descent to the bottom, even pier No. 3, where the *screws* were used, were, to some extent, supported by the buoyancy of the water. See the evidence of John W. Pratt, (page 9,) Jane Wilson (10,) Daniel W. Kelly (11,) Edward Latimer (13,) and Edward S. Renwick (17;) and this instruction, therefore, was of no value to the Defendant; and, impliedly, asserts, that support of the piers, by the buoyancy of the water, was, in itself, an infringement of the Plaintiff's first claim.

The fifth instruction seems to uphold, impliedly, the same idea of support from buoyancy of the water, as constituting, of itself, an infringement of Plaintiff's third claim. For the absence of a combination of a sectional caisson with guide-piles is not declared, without more, as being no infringement of the Plaintiff's third claim; but the Jury, under the instruction as given, were, also, required to find, that the piers "were *sustained*, in the course of construction, and guided down to their foundations, by some other contrivance," (than the buoyancy of water, as we understand the instruction,) in order to warrant them in finding, that there was no infringement of Plaintiff's third claim. Even if its meaning has not been accurately stated; still the instruction is obscure, and calculated to mislead the jury.

The 6th and 7th instructions relate to the measure of damages. The 6th is based on the preceding instructions of the Court; and ignores the idea of a *process* for building and *setting* piers; and limits the enquiry to the point, whether the Plaintiff was the first and original inventor of the said mode for *constructing* piers for Bridges in deep water.

The foregoing analysis of the prayers and instructions will enable this Honorable Court, more readily, to perceive the conflicting views of the opposing counsel, and the precise rulings of the Court below.

The Counsel for the Plaintiff in Error will respectfully maintain in argument the following points:

1. The first claim of the Plaintiff is for *the specified means* of effecting the result, of placing a pier, in a river or stream, in a condition of preparedness for the reception of the bridge, intended to be thrown over such river or stream. Those means embrace a floating coffer-dam, constructed, used and guided, as described in the specification; and also embrace the specified devices and contrivances, for constructing, using and guiding, the said coffer-dam, up to the point of the completeness of the pier.

That this comprehensive interpretation is true, is shewn by the language of the claim itself. It is for "building and *setting*

piers." It is not for *the coffer-dam*, nor for *the use* of the coffer-dam, separately ; but for the use of the coffer-dam, described in the specification, contructed as therein mentioned, gradually lowered by the weight of the masonry, and guided, in its descent, by guide piles, in the manner mentioned in the specification, all co-operating to produce the result to be accomplished ; namely, building and setting a finished pier in a river or stream.

The correctness of this interpretation is further shewn by the language used, in the first paragraph of the specification, where he claims to have invented "a new and useful improvement in building piers for bridges and other structures and *setting the same.*" His first claim is for this *improvement*, and was intended to cover the whole.

In another part of the specification, after mentioning certain preparatory steps, he proceeds to shew how the platform was to be constructed, the first section of the hollow tube to be bolted thereon, &c., "for the building and setting the pier ;" and then follows a description of the whole process of building and lowering the pier in its gradual guided descent until, in his own language, "the pier rests down and becomes 'set' upon the foundation."

A further argument, in support of the construction that, in his claim, he meant to include the entirety of his alleged improvement, is furnished by the second claim, which is "for the use of the tube, which constitutes the dam for encasing and strengthening the pier substantially as set forth." This second claim being for the tube, substantially as set forth, shews that the like words "substantially as set forth," used in the first claim, refers not to the floating coffer-dam, (which is another name for *the tube*, mentioned in the second claim,) but refers to *the process* of building and setting piers, as described in the specification in its entirety. A claim for a process must, of necessity, be definite, precise and comprehensive. It must be for an entirety ; not for separate parts of the means described as necessary to produce the result.

2. The first claim is for a *process*. A process may, undoubtedly, be the basis of a patent, where no part of the means employed, separately considered, is new, or claimed as new. The combination of co-operating constituent elements, so combined and operating, as to produce a new useful result, or a known result in a new and useful way, is patentable. In such a case, the patent stands upon the combination or process.

The following cases will be relied on in the discussion of this point.

Prouty *vs.* Mears, 1 Story's C. C. Rep. 568.
Prouty *vs.* Ruggles, 16 Peters, 336, 340.
Davis *vs.* Palmer, 2 Brock. 298, 304.
McCormick *vs.* Talcott, 20 How. 405.
Vance *vs.* Campbell, 1 Black, 427.
Burr *vs.* Duryea, 1 Wallace, 572.
Eames *vs.* Godfrey, 1 Wallace, 79.
Turrill *vs.* Railroad Co. 1 Wallace, 491.
Case *vs.* Brown, 2 Wallace, 320, 327.
Palmer *vs.* Wagstaffe, in 25 Eng. C. L. Rep. 537.
Unwin *vs.* Heath, 32 Law and Eq. Rep. 45.

In the construction given, as to this first claim, it is limited to so much of the process as is necessary to *building the pier*. It ignores the idea of a *process* for building and *setting*. It does not regard the *guide piles*, as embraced by the first claim, nor *the holes* in the platform, as part of the means employed, in the mode of accomplishing, what he claims as his invention in this first claim.

The Counsel for the Plaintiff in Error will maintain, as to this first claim, the following propositions: *firstly*, the claim is for designated means to produce a specified result, which result embraces the *setting* of the pier; and that the means, designated for the accomplishment of this result, comprehend the apparatus devices and contrivances, plainly set forth in the specification, as the means employed, in connection with the buoyancy of the water, to produce the result; said means combined and co-operating, substantially as set forth in the specification. And secondly, that when the same, or a like, result has been produced by other and different means, such result would be attained without any infringement of the Plaintiff's first claim.

It becomes a question of identity. The doctrine as to "mechanical equivalents," and as to "fraudulent evasion," can have no rightful application in a question of this kind.

We used a platform, but not a platform perforated with holes, for the insertion of guide poles. We used an iron tube of boiler-plate metal; but not a hollow tube, with a bolting flange on its lower edge, so as to be bolted horizontally to the platform. We used no caulk, pitch or cement; our tube had an iron bottom, part of the tube itself. We used the buoyancy of the water; but not in combination with Plaintiff's apparatus. The buoyancy of water is a property of nature, which no one can appropriate.

Now it was very material that the jury should have been properly instructed as to this first claim. Pier No. 3,—the pier

in the deepest water, was guided by screws alone, without the use even of a shaping frame. Pier No. 2, was partly lowered by screws; and subsequently, by fall and block; and was guided by furring, constituting a shaping frame. Piles were not used at all, to guide the platform. Evidence of Latimer, page 12, and evidence of Renwick, page 17.

The fourth instruction, as already stated, did not remove the objection to the Court's instruction, as to the character of the first claim.

3. The second claim of the Plaintiff is "for the use of the tube, which constitutes the dam for encasing and strengthening the pier, substantially as set forth."

The words "substantially set forth" requires that we should recur to the specification, to see what sort of a tube is there described. And it seems to be plain, that he claims a *sectional* caisson. His direction is, to bolt to the upper side of the platform "one section of a hollow rectangular box or tube." He speaks, again, of "the first and several other sections," and of "additional" sections.

But the Court construes this claim, as embracing the use of the tube, "whether it be first placed in position entire, or be built in sections as the masonry progresses." Now there was evidence that one, at least, of the caissons was constructed entire, on shore, and then floated to its place, and "set" on its foundation, before any masonry was put in. But the Court's instruction declares the building *a pier*, in such tube, to be an infringement of the second claim.

In this ruling the Court, we think, was in error.

4. The Defendant's first prayer ought to have been granted in terms as propounded. It embodied a true interpretation of "the principle of operation," as it is denominated in the specification; and which, in fact, is a process for building and setting piers in rivers and streams. We use the word process, because it is generally used in cases of this character. The word "method," "mode," "plan," or other like term, would equally well express the idea. The distinction between a patent for a process, and a patent for a machine, is shown in the various cases, cited in Corning *vs.* Burden, 15 Howard, 259, and in the opinion, in that case, page 267.

5. The eighth prayer of the Defendant ought to have been granted.

By the second plea, (page 5,) fraud and imposition, in the obtention of the patent, were directly charged; and issue was joined on a replication to this plea. Strong evidence was given tending to show the alleged fraud. If found it would have been destructive of the patent.

On another ground, the instruction should have been given. The testimony of Mr. Parker shows, and Dubois himself admits that, in the conversation between them, Dubois did not disclose the fact, if such was the fact, nor even pretend, that he was the inventor of the mode of building and setting bridges, which Mr. Parker, as the engineer of Defendant, intended to follow, in constructing and setting the piers. It is a strong case for the application of the doctrine of estoppel *in pais*. His silence was a justification to Mr. Parker, in pursuing the course, which he had explained to Dubois he intended to pursue.

The following cases are cited on this point:

Doe *vs.* Oliver, 2 Smith's Leading Cases, 417 and notes.
Dalzell *vs.* Odell, 3 Hill, 219.
Stephen *vs.* Baird, 9 Cow. 277.
Hatch *vs.* Kimball, 16 Maine, 146.
Rangley *vs.* Spring, 21 Maine, 137.
Tongue *vs.* Nutwell, 17 Md. 212.
Alexander *vs.* Walter, 8 Gill, 247.
McClellan *vs.* Kennedy, 8 Md. 230.
Bank of U. S. *vs.* Lee, 13 Peters, 119.
Pickard *vs.* Sears, 6 Ad. & Ell. 460, in 33 Eng. C. L. Rep. 115.

9. The ninth prayer was framed on the theory, that the evidence in relation to the state of the art of building and setting piers, known at the date of Plaintiff's patent, was proper to be considered by the jury upon the question, whether the Plaintiff was the first and original inventor of what he claimed as new. The Court, in its sixth instruction, limited the consideration of the state of the art to the question of damages alone.

See Vance *vs.* Campbell, 1 Black, 427.

WILLIAM SCHLEY,
THOMAS DONALDSON,
For Plaintiff in Error.